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Richfield Dedicates $40,000,000 Addition to Refinery

A $40,000,000, two-year building project was culminated May 26, with the dedication of Richfield Oil Corporation's new refinery facilities at Watson, near Los Angeles Harbor.

Representing the "last scientific word" in petroleum processing equipment, the new units, added to those now in service, "give us here on the Pacific Coast a refining plant unsurpassed anywhere for the production of premium-quality gasoline and other petroleum products," Charles S. Jones, Richfield president, said.

"We have built this new equipment to meet the needs of both Western motorists and the military." Mr. Jones said. "Demand for superquality gasoline is increasing steadily with advancements in automobile design and with the growth of population in the West."

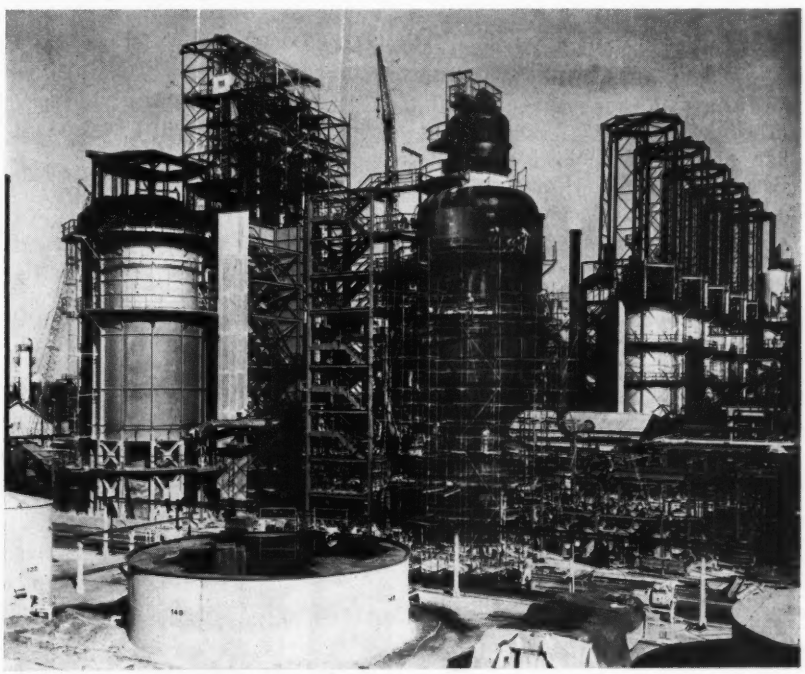
"In the interest of national defense, our potential for producing aviation fuels has been nearly tripled," Jones said, reminding that Richfield contributed heavily toward the oil products consumed in the campaigns of World War II and during the war in Korea.

Emphasis has been placed primarily on quality of product in the planning of the refinery expansion. The plant's capacity for processing crude oil will be increased only about seven per cent in volume, but the yield of premium-quality gasoline from each barrel of crude oil will be increased by about twenty per cent, Jones said.

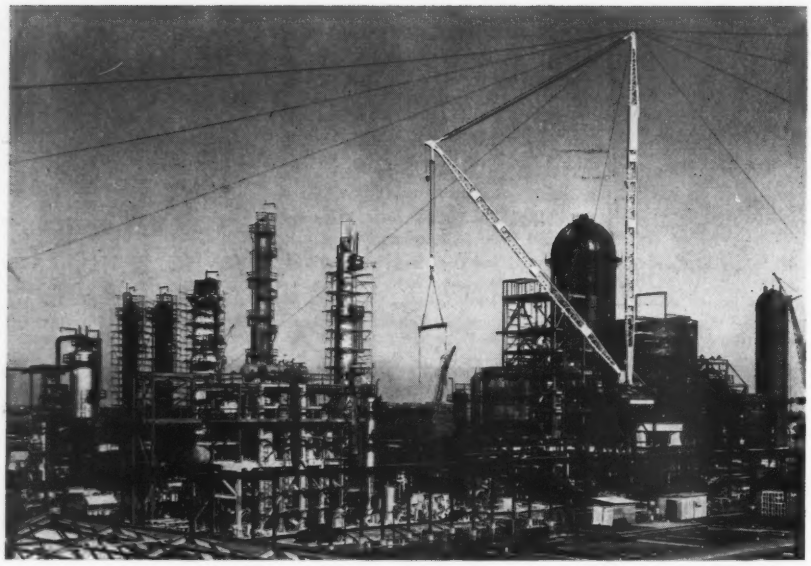
"We have made the air pollution problem in the Los Angeles area a major consideration in our building project," the Richfield president pointed out, "and we have taken elaborate precautions to prevent our plant from being a smog contributor."

New and previously installed devices to prevent air contamination at the refinery represent an investment of $6,737,431, he said. The system incorporates every applicable scientific anti-smog device known, it was emphasized.

New equipment erected at the refinery includes one of the world's largest fluid catalytic cracking units of the most advanced design, a high-efficiency vacuum still, greatly increased alkylation capacity, a



BUSINESS LOOKS GOOD—This construction of the latest design in fluid catalytic crackers is part of a $40,000,000 expansion program at the Richfield refinery at Watson, near Los Angeles Harbor. The towers at left are fractionating columns to be used in conjunction with the new catalytic cracking system. At the right are huge vessels in which the cracking reaction will occur and the catalyst will be regenerated.



mammoth polymerization plant, and other units for the manufacture of gasoline components.

Increased processing efficiency has been built into existing refinery installations. Other new auxiliary facilities provide steam, electrical power, water cooling, tankage, field piping, maintenance shops and warehouse space.

Richfield Refinery Fact Sheet

Richfield's Watson refinery occupies 546 acres of ground. It is located on the northwest corner of Alameda and Sepulveda Boulevard.

Cost of the expansion program represents an investment of $40,000,000.

To prevent air pollution at this most modern refinery, devices costing $6,737,431 have been installed.

The Richfield refinery now provides employment for the breadwinners of 1,644 families. The Richfield Oil Corporation employs 5,360 persons and supplies approximately 3,800 retail service stations in six Western states.

New Construction

Fluid Catalytic Cracking Unit—Largest of the new units and one of the largest of its kind in the world, this cost $17,300,000 to construct.

It towers 15 stories high and has a charging capacity of 2,646,000 gallons per day.

High-grade gasoline and gasoline components in the amount of some 874,650 gallons per day will be produced in this unit, including hydrocarbons for alkylation and polymerization.

Catalyst circulates in this unit at the rate of 7,200,000 pounds an hour, and less than 40 of these pounds escape as dust from the cyclone recovery system and the largest electrostatic precipitator in the world.

A 340,000-pound-per-hour, high pressure boiler utilizes the heat of waste gases. This is enough heat to warm a city of 11,620 five-room houses.

Maintenance and operating crews use a passenger elevator to perform their duties quickly. Telephones connect various levels with the Richfield refinery switchboard.

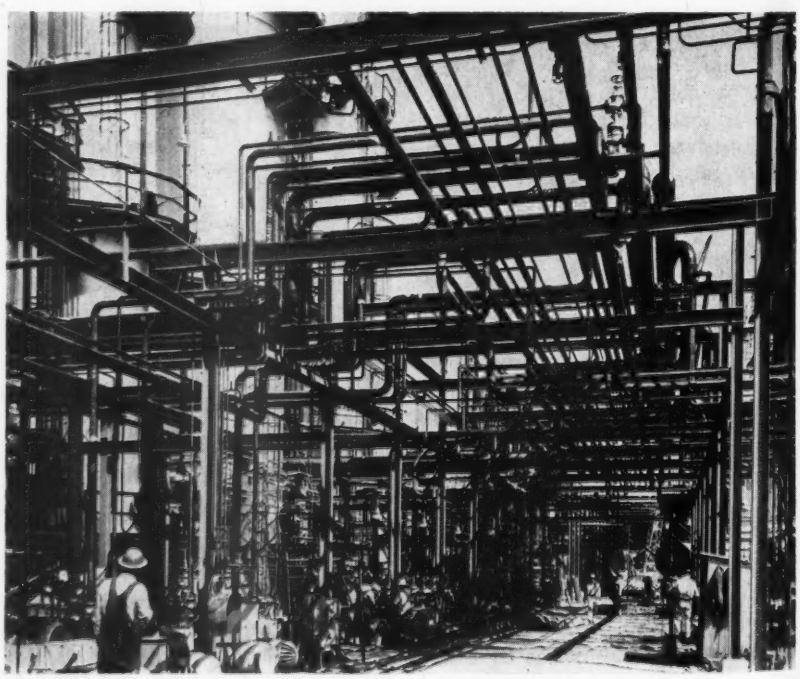
Vacuum Still — This newly-built unit has a charging capacity of 2,520,000 gallons per day. It is of the most modern design and supplies the raw material which the fluid catalytic cracking unit converts to high-quality gasoline.

Polymerization Unit—Gases ordinarily too light for inclusion in gasoline are polymerized or bonded together in this new unit to form a gasoline ingredient of great power and high-octane rating.

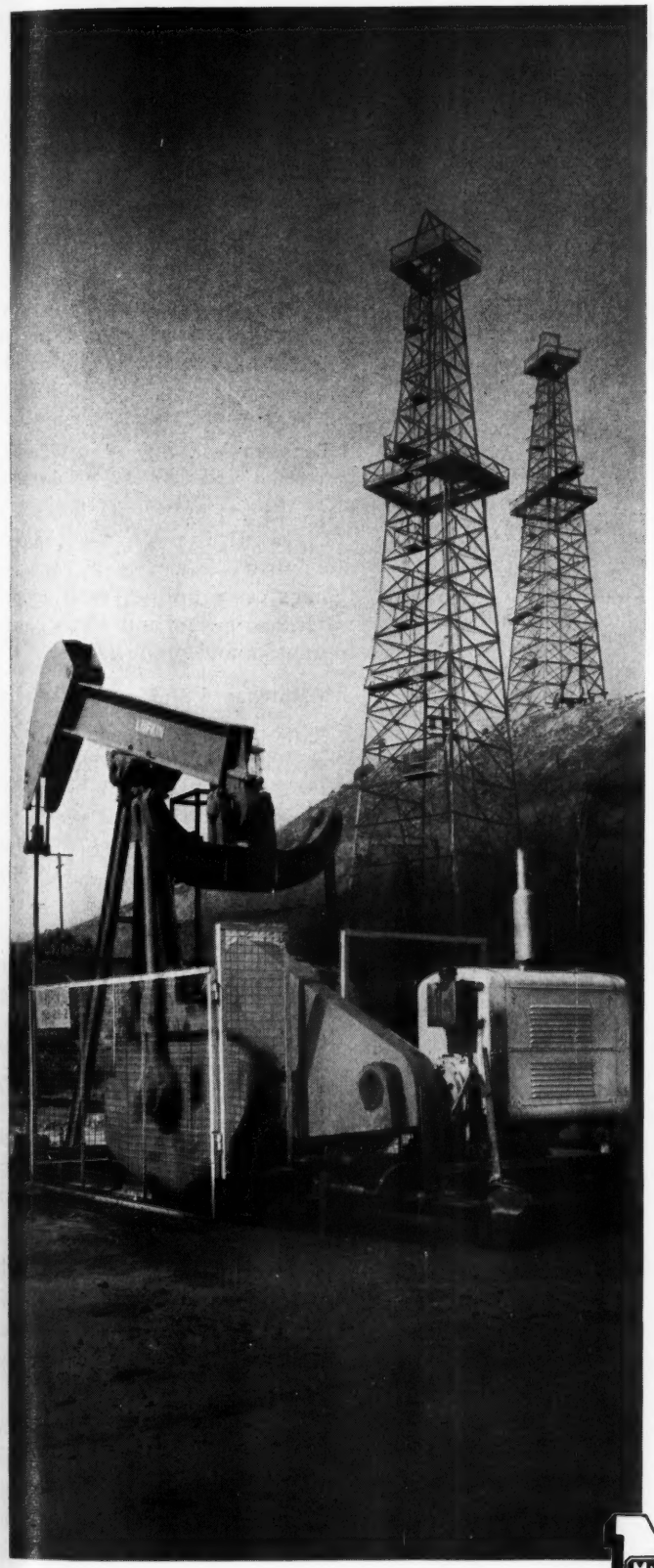
Capacity for polymer production added by the unit is enough to energize 1,000,000 gallons of top-quality new gasoline daily.

Alkylation Unit—New equipment has nearly doubled the capacity of the alkylation unit. Alkylate has one of the highest anti-knock ratings of any of the gasoline components refined, and is a principal constituent of aviation gasolines. In peace-time, alkylate contributes immensely to improving the quality of automobile gasoline.

To cool the chemical reaction so as to produce the compounds desired, the refrigeration system now is large enough to serve a city of more than 200,000 population. This



240 MILES OF PIPE—This maze is part of the more than 240 miles of new piping added to the Richfield refinery.



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refrigeration unit is capable of producing enough ice in one day to cool two and one-half cold drinks for all the people in California.

Equipment Modernized

Combination Crude and Thermal Cracking Units—These units have a crude-charging capacity of 3,360,000 gallons of crude per day.

Crude topping and thermal cracking of gas oils takes place here in one operation. Improvements installed in moderization increased capacity 33 per cent.

Thermofor Catalytic Cracking Units—These units produce exceptionally high-quality gasoline components. These two units, modernized to increase their efficiency, have a combined capacity of 1,260,000 gallons per day charge, and produce about 420,000 daily of high-quality gasoline.

Rising 240 feet into the air, the principal structure of these units compares in size with a 21-story office building.

This unit is also equipped with an elevator and telephone service.

Super-fractionation Unit—Twelve, tall fractionating columns in this unit divide gasoline into individual hydrocarbons for selective use in blending aviation and high-grade motor gasolines.

Crude Distillation Unit—Crude-topping units distill crude oil into gasoline, solvents, heating oils, and Diesel oils. Combined capacity of these units is more than 2,100,000 gallons per day.

Improvements increased the efficiency of these units more than 40 per cent, both in quality and quantity.

Auxiliary Improvements

Steam—Enough steam is generated at the new and modernized refinery which, if converted into electrical power, would meet the requirements of a city of 375,000.

Electrical Power—Power used by the system is purchased from Southern California Edison Company and amounts to 542,000 kilowatt-hours per day, delivered at 66,000 volts. This would supply a community of 70,000 population.

Water Cooling—Cooling facilities are equal to those needed to air-condition 420 office buildings the size of the 12-story Richfield building in downtown Los Angeles.

Tankage — Storage capacity for petroleum and refinery products is more than 21,000,000 barrels.

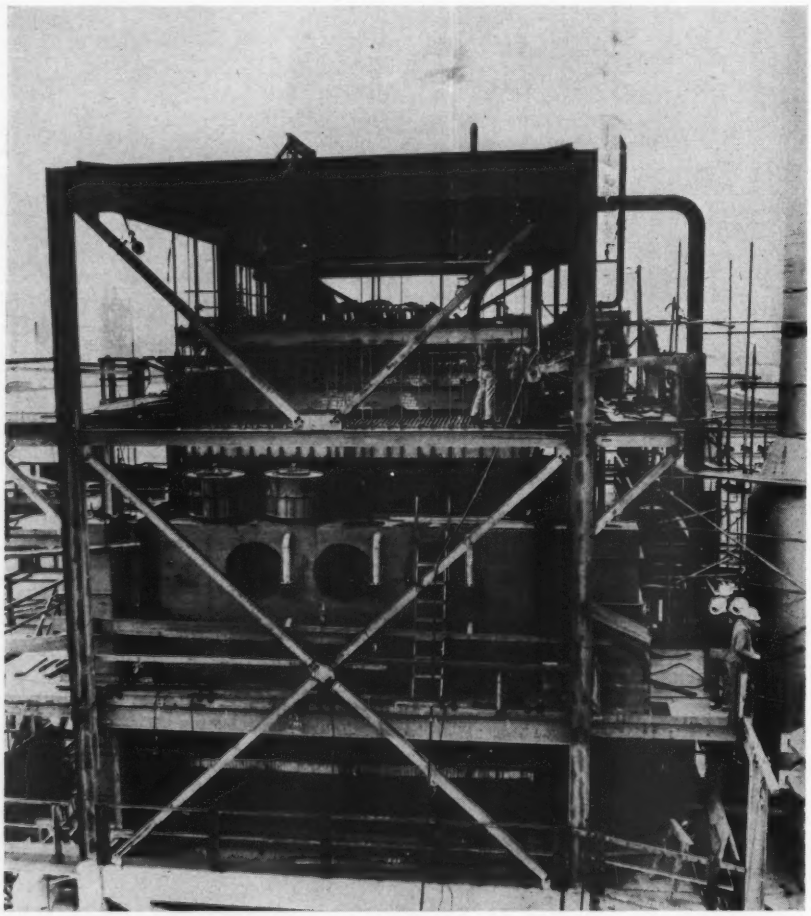
Field Piping—In the refinery, more than 1,500 miles of pipe and tubings carry utilities such as gas, water, and steam, as well as charging stocks and products.

Maintenance Shops—Of the more than 1,600 refinery employees, 500 men — machinists, electricians, instrument men, pipefitters, riggers, welders, and carpenters — are employed in the maintenance shops alone, which occupy 90,000 square feet of floor space.

Exhaustive studies of maintenance and repair facilities throughout the nation resulted in the final design and strategic location of the most modern facility which could be built. Maintenance and repair of everything required in the operation of the refinery—from delicate gauges and instruments to the largest rail-tank cars—can be accomplished in these shops.

Warehouse—Floor space of the warehouse approximates 50,000 square feet and is used for storing more than 13,000 individual items of refinery equipment.

Conveniently located adjoining the maintenance shops, this facility employs the most modern methods of warehousing and makes readily available materials and equipment for the many and varied requirements of maintenance and repair.



AIR POLLUTION PREVENTER—This new $1,200,000 waste heat boiler being built at the Richfield Refinery near Los Angeles Harbor will complete combustion of waste gas and utilize the heat to produce steam for the refining process.

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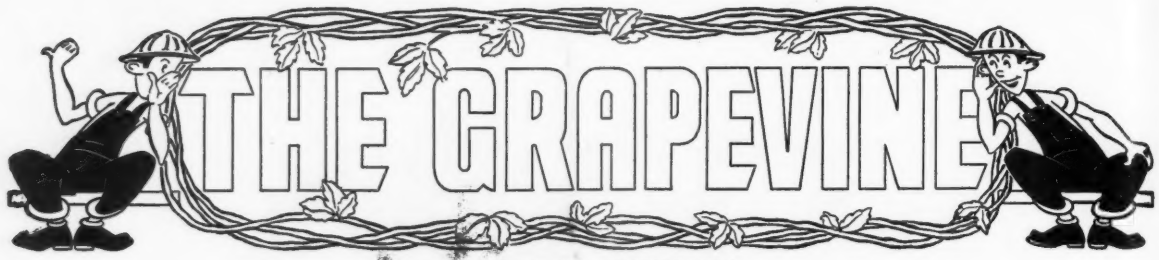

By RICHARD SNEDDON

Big Doings at Watson

The other Wednesday we were one of a group of right fortunate folk who were guests of C. S. "Charlie" Jones and his Richfield Oil Corporation aides for about nine of the nicest hours of hosting in which we have been involved during a long life of sporadic partying. This one was in celebration of the completion of a two-year project which included modification and expansion of Richfield's Watson refinery, at a cost of forty million simoleons, to make it yield greater quantities of higher quality aviation gasolines—not only the new types we need at this moment to protect ourselves from international gangsters, but also the ultra modern types that will be required in the future to keep pace with advances in all phases of transportation.

Of Polymerization and Stuff

Just after lunch we, and some 250 others, were loaded into trim buses at the Richfield parking lot and in no time at all were on our way to the refinery. Enroute, a good looking and most attentive air hostess ministered to the wants of the passengers from an improvised soft drink bar and tobacco dispenssary. Upon arrival at the refinery we drove through a forest of convoluting pipes, monstrous cat crackers, alkylation units, fractionating columns, treating plants, etc., while a thoroughly informed young chap casually yet interestingly explained over the microphone the purpose of the various gadgets. In due course we returned to a marquee, especially erected for the occasion, and there found Lawrence Welk and his boys giving forth with what we have long considered the best singing and dancing music available in this part of the country. We were conducted to our seat by one of the lovelies already mentioned, and right on the button, the dedication ceremony started.

Platform Preliminaries

The whole thing was simply out of this world. Following the singing of the National Anthem, with Gordon MacRae's marvelous voice keeping us on key, and a brief but appealing invocation by Reuben F. Pieters, D.D., pastor of the First Presbyterian Church of Long Beach, we were warmly welcomed by John Wald, the staccato newscaster whose pleasing personality has been projected out over the airwaves under the sponsorship of Richfield for the past 17 years. When John introduced Art Linkletter, the Moose Jaw philosopher, as master of ceremonies, the fun really began. Art was in excellent form and made much amusing talk about his oil ventures in Texas—particularly the well that has been drilling for eight years. There were some entertaining comparisons of costs and mortgages during the course of the proceedings, interrupted by a few more selections from Gordon MacRae. This boy has a wonderful voice and a nice manner to go with it. His rendition of "There's Gonna Be A Great Day," and "I Believe," were good enough to be genuinely thrilling. As a matter of fact, we had intended to sing a couple of ditties ourself but after hearing Gordon's offering we decided against asking for the mike.

A Bid for Linkletter Crude

Mayor Norris Poulson was on hand and easily won a buck from Art Linkletter by making a neat commendatory address in exactly 41 seconds. In his dedication speech, Charlie Jones traced the history of refining from the old whisky still to the very latest cat cracker; undertook to buy Art Linkletter's crude if he ever found any; paid high tribute to his Richfield associates for their contribution to the new refinery development; and became really serious when he disclosed that the Company had already voluntarily spent over seven million dollars to remove pollutants from refinery gases vented to the air. He was followed to the rostrum by Dave Day, vice president in charge of refining, who recited the events leading to the current development and got quite a laugh when he said that the Company had done very well by merely putting gasoline in its gasoline. Next to speak was Clarence McKay who has been in charge of the Watson plant and all that goes on in it since it was built. After telling very interestingly of the refinery's growth, he called on some of his leadmen, notably Frank Fontana, R. P. Corlew, D. C. Herthel, B. W. Neumaier, Bill Farquhar, and E. H. Reynolds, to take a bow.

The Cocktail Hour

The entire affair ran like clockwork! The dedication ceremony finished on schedule at 5 p.m., whereupon we boarded our buses again and took off for the Ambassador Hotel where a cocktail season was timed to begin in the Colonial Room at 6 p.m. It did! Incidentally, we rode to and from the refinery with Bob Harcus, executive vice president of Byron Jackson Company, sharing our seat, and we had a nice time discussing everything from shale to champagne. Anyway, arrived at the Colonial Room, we made a hasty attack on the hors d'oeuvres (having skipped lunch earlier in the day), and were soon

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BUILDER OF ARROYOS

Raymond A. Powell, secretary-treasurer of Santa Fe Drilling Company, is a tall, husky chap with a pleasing manner and a fine analytical mind. He was born in Moscow—Idaho, that is—was graduated with a B.S. in business administration from Oregon State College, Class of '23, and while there played tackle on the varsity football team. He began his oil career time keeping and doing sundry other chores for the construction department at Union Oil Company's Los Angeles refinery in 1927 but was later transferred to field accounting at Santa Fe Springs. By 1930 he was in the head office handling foreign accounts relating to subsidiary operations in Venezuela, Mexico, and Australia, and for a time worked on marketing station accounts under Milton Kerr, now known as the sage of Oneonta. After another term in Santa Fe Springs, he was moved to Bakersfield as district accountant, thence back to Santa Fe Springs as division accountant, and finally again to the head office in charge of workmen's compensation.

In 1947 he was one of a group of Union Oil Company employees who purchased the Company's drilling equipment and formed the Santa Fe Drilling Company. The original officers of this concern were J. D. Robinson, president; Frank Gess, vice president; and Ray Powell, secretary-treasurer. Besides these, the board of directors included H. B. Wickersham, Howard Robinson, Leo Goss, and Kent Garner. The firm started off with 9 rigs, now owns 19, and has 29 altogether operating in scattered parts of the world. Two are in the Kuwait Neutral Zone, one in Tunisia, five in Venezuela, four in Peru, five in Chile, one in Bahrein, one in Australia, and ten in California. All of which would indicate that the Robinson-Gess-Powell management has been a good one.

Getting back to the subject of the discourse, however, Ray's hobby is a 4-year old grandson, Lenox, whose home is in Venezuela and who has been trying hard to teach his grandfather to speak Spanish so that together they might thrash out some of the problems of the moment. When Ray picked the grandson up at Panama a few months ago, they had no means of communication at all until they bumped into Henry Pullman at San Salvador. With Henry acting as interpreter everybody soon became fast friends. The father of the boy, incidentally, is Bill Rector, immediate descendant of the famed Union Oiler, Chris Rector. Bill is with Richmond Petroleum Company down in Caracas. In conclusion, as the accompanying illustration shows, Ray is something of a golfer in his spare time. Indeed, it has been fairly well established that most of the deeper arroyos in this area have developed from Powell divot holes.

well fortified against the evening festivities. Here we ran into a wide stash of important people but shall steadfastly refuse to name the lad who, towards the heel of the cocktail hour, was trying desperately to kindle one of these little sausages with a Ronson lighter while he sucked noisily at the other end.

Among Those Present

Among the notables we spied here comporting themselves with fine decorum were Mayor Norris Poulson, Sheriff Gene Biscailuz, Ted Petersen, Phil Magruder, Jud Hillman, Ed Pellegrin, George Barraclough, Mark Brown, Herb Yocum, Frank Seaver, Norm Rousselot, Dr. John Ruddock, Bill Travers, Ed Waite, Jasper Tully, Tom Self, Russ Green, Mason Hill, Rollin Eckis, Frank Morgan, Bill Pemberton, Ralph Parsons, Milt Lewis, Jack Pike, Bo Weill, Floyd Maxwell, Don Grubbs, Wendell Jones, Pete Boesche, Dave Day Sr. and Jr., Bill Gregg, Oscar Lawler, Jack Crawford, Norm Anderson, Bill de Ridder, Rodney Durkee, Frank Fontana, Frank McPhillips, Safford Nye, Frosty Martin, Fred Hanson, Bob Harcus, Pete Pitchess, Bill Narry, Eloi "Frenchy" Amar, Don Darnell, J. S. Fluor, Felix Chappellet, Chuck Day, Mort Kline, Lew Hockstrasser, Charlie Pollak, Bill Powell, Bert Kelly, Bob Kepke, W. G. King, Ed Lloyd, Norm Simmonds, John Spaulding, Gil Wilson, Allan Van Cranabrock, Mo Benson, Bill Conroy, Bob Sullivan, Archie Lee, San Wagner, Allen Beal, H. L. Briggs, Bob Bergen, John Braun, Les Stockman, Emory Squires, Dick Borden, Bill de Martini, Alex Campbell, Jerry Stumm, and as the legal boys say "et al." To et al, by the way, our profound apologies for missing them and to those mentioned further apologies for a total disregard of protocol and stuff.

The Dinner Bell Rings

At the conclusion of these whistle soaking rites we all wended into the Embassy Room. Here, we were first regaled with a few lovely numbers by one lovely number, Connie Haines, assisted by Manny Harmon and his harmony boys. Then came the dinner—and what a dinner! There has been nothing quite like it since the Saturday night get-togethers of Epicurus and Bacchus. It featured wines of infinite variety—most difficult to pronounce and most delectable to sip, foods to titivate the most jaded appetites, and a general atmosphere of gaiety that for the moment at least made life a very lovely thing. The room was beautifully decorated, with bird of paradise blossoms striking the predominant note. They peeped from wooden bird cages suspended overhead, and were plentifully in evidence in table pieces, wall sprays, and indeed everywhere within sight.

Comparative Costs of Doing Business

The effect was striking but no more so than was the consummate hosting of Charlie Jones. Here is the western petroleum industry's No. 1 bon vivant. His after dinner oratory is priceless. It is a confidential sort of thing that lacks the suavity of an expert presentation but is as warming as an electric blanket. It is our guess that the Richfield prexy prepares himself as meticulously as anyone else for an ordeal of this kind, then at the last minute he tosses all the prepared stuff out the window and delivers himself of an impromptu chat that is sincere, friendly, and completely interesting. On this occasion he certainly sold himself and his company to an audience that thoroughly enjoyed every word of his extemporaneous remarks and uninhibited introductions. Among other things he told us that forty years ago, for $100,000 one could buy a refinery, enough crude supply to keep it busy, and a distributing system

to dispose of its products. Now that much money hardly pays for a dedication ceremony.

The Last Word

The windup of a really impressive affair, and it was just as impressive as all the rest, was General Mark Clark's account of his world adventures over the past 35 years more or less, with particular reference to the war and the armistice negotiations in Korea, in which he played a leading role. The General has a deep resonant voice, a fine platform presence, and a good sense of humor, and his life has been so occupied with international operations and decisions that his reminiscences are extremely pertinent at the present time. He is anything but a pussyfooter and his forthright declarations should do much to clarify the thinking of the political fence straddlers. Wherewith endeth our account of an outing that will long be remembered as one of the outstanding interludes in a career that has been liberally interspersed with interludes of one kind and another.

With the Tile Tossers

Switching now to more mundane matters, about the sharpest domino player in these parts is Dean Walling, executive vice president of Western Geophysical Company. Dean is a modest, almost bashful sort of a chap who nonetheless has an amazing familiarity with all the abstruse aspects of mathematics. The probability laws are duck soup to him and what he doesn't know about the accumulation of five multiples is hardly worth remembering. He has an uncanny premonition that amounts almost to an understanding of what your plans, if any, are after you have played your first domino, and he is in consequence vastly feared by the lesser tile tossers, including ourself. We have on several occasions been so humiliated by Dean that we have had to consult a psychologist, and the bank has asked us to take up betting on horses or something that doesn't raise quite so much caine with what is laughingly termed our financial status.

The Lufkin Line

By VIC FAWCETT

PORTOLA MAKES MEETING POSSIBLE

In 1769, Portola and a Spanish exploration party sighted San Francisco Bay—it said in the book lying on the telephone table at the Sir Francis Drake.

On or about May 30, 1954, a group of approximately 300 oilmen from all over the country, descended on San Francisco and either discovered or re-discovered places like:

"The Fly Trap" (so named because of nearby early day stables) —Famed for good eating since before the fire.

"The Dominoe Club"—Where hard working committeemen relaxed and dined in arty atmosphere. Paintings insured for $100,000.00.

"Trader Vic's"—A gourmet's delight. Portola and his bunch would have traded all their treasures, and their schooner to boot, for one feast.

API Div. of Production Committeemen worked hard and thoughtfully on new standards or improvements of previously established standards on things like oilfield pumping units, derricks and masts, tubular goods, valves and fittings, rotary drilling equipment, oilwell cements, vocational training and supervisory development.

California people actively interested or leading discussions in these proceedings include Hal Marsh of General Petroleum; also Johnny Hills and Don Dawkins of General Petroleum.

Al Morrison, Ed Gallagher and Bob Kettenburgh made the trip and it was good to see our friends from Shell Oil.

Standard Oilers Jules Toussaint and Carl Dawson were present. Carl was chairman of the Formulating Committee on a short course in "The Care and Use of Sucker Rods."

George Truran, Pretz Hertel and Martin Mears represented Tide Water Associated Oil Company in the due and ancient manner.

Harry Aggers carried the ball for Union Oil, and many other California oil men were present.

Running from May 30th, Standardization Meetings were successfully concluded on Friday, June 4th.

Vic Fawcett

(Lufkin produces the finest . . . Pumping Units . . . Gear Reducers . . . 2 Cycle Gas Engines.)

News From Brazil

In the foreign mail a short time ago came a letter from Phil Wolfe, the Drillex chap who is down in Jacarezinho, Parana, Brazil. Phil has developed a new hobby, making furniture, and is in an excellent spot to get experience in working with the fine hardwoods for which Brazil is famous. He is very much in love with the country and thinks the people among whom he now lives are the salt of the earth. It gets pretty hot and humid down there but despite that his present intentions are to stay a year beyond his contract if things keep going as they are going now. The one thing he seems to miss most are the PPP barbecues at which he has always found lots of his friends, and he hopes when he comes back to attend a few more and catch up with some of his buddies. Anyone who would like to contact Phil can do so at 542 Candido Fortes, Jacarezinho, Parana, Brazil, S.A.

Word from the Halawahi Champ

A note from Ted Sterling, the Hawaiian Halawahi champ who recently captured so many big game fishing trophies in a single outing that all the professional anglers are green with envy. He tells us that he and Mrs. Sterling are on their way to Rancho Las Cruces, La Paz, Baja California, Mexico. This is supposed to be a brief bit of relaxation following the completion of a deal involving Ted's holdings out on the McNally Ranch in Buena Park. He has held 2000 acres under lease out there for a spell and has had seven wells drilled on the property. The piece lies between Santa Fe Springs and West Coyote and Tide Water Associated has been in with him on the development. Don't know whether or not there is any opportunity down on the Rancho for a fisherman but now that Ted has established a rating as one of the oil industry's top piscatorial performers, he will probably find some way of getting over to the coast and teaching the sailfish a lesson.

Corrosion Treatment of Pumping Wells in California

By
Preston W. Hill*
Frank E. Davie**

Abstract

This paper describes the oil well corrosion problem in California. As many as half of the wells may be affected. Currently one well in ten is being treated. Cause of corrosion is acid attack by CO_2 and H_2S. Various mitigation methods have been tried but inhibitors both inorganic and organic have been most effective. Control program is outlined. Significance of iron count is relative. Importance of good records is stressed. Results of a survey indicate that overall control program has resulted in a 51% reduction in repair jobs.

Introduction

It has been recently estimated that the annual cost of corrosion to the petroleum industry is in excess of $600,000,000.[1] A significant part of this cost is due to "down-the-hole" corrosion, where, although metal loss may be small, repair costs are unusually high.

Corrosion of oil and gas field equipment has long been a topic of discussion in the oil industry[2] and at API meetings.[3] Most of these early discussions, in so far as sub-surface pumping equipment is concerned, dealt with the metallurgy of the system. It has only been in the last decade that effective chemical means of controlling corrosion have been developed. The serious corrosion experienced in high pressure wells in gas condensate fields along the Gulf Coast led to the formation of API, Natural Gasoline Association of America, and National Association of Corrosion Engineers committees to determine causes and preventative measures.[4] The work of these committees was centered around the Condensate Well Corrosion Committee, which has published a comprehensive book on its findings.[5] A paper given at the Pacific Coast District Meeting five years ago indicated that oil well corrosion could be controlled with chemical inhibitors.[6]

Until the last few years, repair or "pulling" jobs on pumping wells have been considered a necessary part of field maintenance. Failures of underground equipment were attributed to "crystallization," wear, "electrolysis" and occasionally corrosion.

A well organized production maintenance group was able to make repairs quickly to reduce "down-time" to a minimum. Cost was not emphasized. In fact, it was not until the recent steel shortage when rods and tubing could not be had for any price that corrosion control received serious consideration.

Four years ago, a group of local oil company engineers, at the suggestion of E. O. Kartinen of Signal Oil and Gas Company, became interested in oil well corrosion and formed a sub-committee, which was sponsored by the National Association of Corrosion Engineers, for the exchange of ideas and experience relating to the specific problems of oil well corrosion control. This group is called Technical Practice Committee 1-A (Oil and Gas Well Equipment—Pacific Coast. Monthly meetings for discussions, reports and prepared talks have been held. This cooperative enterprise has proved beneficial to the members and their companies. Most of the material in this paper was derived through contact with this group.

Problem

Although there are many flowing wells in California, the problem of corrosion failure primarily concerns pumping wells, and of these the great majority are pumped with rods. There are almost 30,000 pumping wells in the state. It is estimated that approximately 3,000 of these are currently being treated for corrosion. A very rough estimate might show that something over half of the wells could economically be included in a corrosion control program.

"Down-the-hole" failures due to corrosion may be grouped by the equipment involved as rod breaks, tubing failures, pump troubles and casing failures.

Rods fail most commonly by corrosion fatigue. Starting at a small crack or pit and progressing transversely, the reduced area finally fails in tension. Characteristically, there is very little metal loss. Rods sometimes fail from excessive wear, accelerated by corrosion, with notably flattened sides, which are bright when first pulled. Rods also fail by pitting attack, variously referred to as "worm-holing" or "electrolysis." Rod boxes are also subject to pitting and wear-accelerated corrosion.

Tubing failures are usually caused by pitting, mostly from the inside. As soon as perforation occurs, the increased fluid velocity soon enlarges the hole. Longitudinal split failures are due to rod wear, accelerated by corrosion.

Many of the pump failures are due to pitting or erosion, plus corrosion.

Casing failure is fortunately less common. Most of the trouble is external which makes it difficult to prevent and very expensive to repair.

The extent of corrosive attack varies greatly from field to field and well to well, so it is difficult to generalize, but perhaps the history of a particular well will illustrate the problem:

This well was completed about the middle of 1939 as a clean flowing well. In 1942 the water began to come in, and the well was put on the pump the first of 1944. The repair jobs are listed by year.

Year	Rods Parted	Hole in Tubing	Remarks
1944	1	—	
1945	—	—	
1946	1	—	
1947	3	—	
1948	10	—	Well put on
1949	3	5	pump
1950	2	3	

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1951 (1st ½)	5	3	
1951 (2nd ½)	—	1	Inhibitor started
1952	—	—	August
1953	—	—	1951

Causes

The mechanism of oil well corrosion is now generally recognized as acid attack, due to the CO_2 and H_2S in the well fluids. Small amounts of organic acids have also been reported, but their significance, as far as the local problem is not established. It has been shown that CO_2 alone, in brine at the temperatures, pressures and concentrations found in the field, can cause rapid corrosion. The presence of oxygen has been shown to be unnecessary.

Treatment

Early attempts to mitigate corrosion which have since been discarded include:

1. Neutralization of well fluids with alkalies. Costly and bad side effects.
2. "Gadgets"—usually some sacrificial metal such as magnesium—very limited effect. To date, no mechanical appliance has been shown to be effective.
3. Various electrical methods—ineffective.

Several inspection services have developed in an attempt to reduce production costs. Rod inspection methods are in use based on the magnetic particle principle and magnetic induction effects. Recording calipers are available for tubing inspection. These inspections are of service in grading equipment and thus eliminate some incipient failures, but of course, are not intended to reduce corrosion.

The effective approaches to the problem have been the use of alloys, coatings and inhibitors.

Alloy rods and tubing have been effective in reducing corrosion in some cases but unless necessary for strength, expensive alloys may well prove to be uneconomical if effective inhibitors are used.

Coatings, specifically plastic coatings, appear to have some promise if the "perfect" plastic can be developed. Problems include adhesion under well conditions, abrasion resistance, and cost.

Inhibitors have proven by far to be the most effective means of achieving results. Corrosion inhibitors are chemicals, used in small quantities, which interfere with the corrosion reaction at the surface of the metal.

Two general types of inhibitors have been used successfully in California; the inorganic, as represented by chromates and arsenical compounds, and the organic types, high molecular weight semi-polar compounds usually containing nitrogen. Considerable laboratory work has been done on the effectiveness of inhibitors. This has been very helpful in screening out compounds which show little effect or none at all. However, it is very difficult to simulate actual field conditions in the laboratory. The present basis for selection of inhibitors is by trial as no practical criteria for predetermination of field performance has yet developed.

Control Program

The basic principle of inhibitor treatment is to introduce the inhibitor into the system in such a manner that all corrodible surfaces are reached. There are several methods of accomplishing this purpose, depending on well conditions. The most popular method at present in California is to introduce the inhibitor daily in a batch down the annulus between the casing and the tubing so that it is produced up the tubing with the well fluids. Usually 20 to 30 gallons of fresh or produced water are used to flush the inhibitor down the casing. If the fluid level above the pump is high, the density of the inhibitor and its solubility or dispersibility in water may be important in getting the inhibitor to the bottom. With low levels or "pumped off" conditions it may be necessary to dose more often. The proper dose is determined by trial starting with an average 2 quarts a day. Most inhibitors have been shown to have some degree of persistence so that the interval can vary somewhat.

When selecting a well for treatment, it is common practice to go over the well record for the past several years if possible, noting each repair job and related data, If the well has had more than two jobs per year, the chances are that it can be economically treated. Then

TABLE I (X)
ANALYSIS OF CORROSION CONTROL AS RELATED TO WATER PRODUCTION

Water % of Production	No. of Wells	Pulling Frequency—Jobs/Year						Material Replacement/Year							
		Rods		Tubing		Total		Rods		Boxes		Tubing		Pumps	
		B	A	B	A	B	A	B	A	B	A	B	A	B	A
0–40	18	1.8	1.0	2.0	.4	5.6	2.2	9.1	4.4	7.8	2.1	10.0	.7	2.5	1.1
40–50	14	1.1	.6	3.9	.4	6.1	2.1	10.4	3.9	5.6	3.0	14.4	.5	1.9	.9
50–60	15	5.3	1.7	1.8	.8	8.5	3.4	28.7	11.2	1.8	2.5	4.2	.8	1.8	1.3
60–70	15	1.9	2.2	2.4	1.4	6.2	5.5	13.8	14.5	4.3	.6	12.6	3.2	3.2	2.8
70–80	44	2.8	1.7	2.3	0.6	6.6	3.8	16.6	7.1	7.5	1.9	10.6	1.1	2.5	1.7
80–85	37	4.1	1.6	2.5	.9	9.1	3.9	12.3	5.1	6.2	3.3	12.6	2.2	3.4	2.0
85–90	46	4.2	1.9	3.0	1.1	9.5	4.7	20.2	6.9	7.1	5.1	12.8	3.3	3.3	2.0
90–93	45	3.3	2.1	3.7	0.9	9.1	4.6	18.8	4.5	6.3	5.4	18.1	3.2	3.5	2.0
93–96	61	4.0	2.4	3.7	1.2	9.2	4.9	20.5	7.1	14.6	6.7	17.9	5.0	3.1	2.3
96–99	53	4.2	2.1	3.9	0.8	10.3	4.1	17.8	5.2	12.2	6.3	23.8	4.4	3.3	1.8
ALL	348	3.5	1.9	3.1	0.9	8.6	4.2	18.0	6.1	9.1	4.5	15.5	3.3	3.1	2.0
Per Cent Reduction		46		71		51		66		50		79		36	

B—Before Treatment
A—After Treatment
(X) Taken from "Survey of Corrosion Control in California Pumping Wells" by Frank E. Davie and Preston W. Hill, presented at the Annual Conference of the National Association of Corrosion Engineers—Kansas City—March, 1954.

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a series of iron counts or determinations are made on the produced fluid. These data are compared with the quantity of water and with previous well experience. A decision is made as to treatment program. After inhibitor is started, a routine for iron counts is established, and the significant repair work studied. The importance of follow-up should be emphasized.

Testing

Most of the companies in California interested in oil well corrosion are using the iron count as a tool in their investigation. It is important that all concerned have an understanding of the test and its significance in order to properly evaluate data.

The iron count test consists of chemically determining the amount of iron in the well fluids. It is usually reported as parts per million of metallic iron. Although some instances have been reported of iron present in formation water, it is a fair assumption that the iron in solution came from the corrosion of well equipment. Since this corrosion is a water-dependent reaction, it was formerly assumed that all of the iron was dissolved in the water and so the water phase only was tested. It was soon found, however, that part and sometimes all of the iron was associated with the oil, so that the present tendency is to include the iron extracted from the oil phase in the results. The sampling technique and field preparation of the sample has been found to be critical. The actual laboratory determination has been accomplished by several methods with apparently satisfactory results.

As for interpretation, it should be emphasized that there is no absolute value that would indicate the severity of corrosion. Variables affecting this interpretation include: Quantity of water produced, amount of steel exposed, type of corrosion, and many others difficult to evaluate. The helpful significance of the iron count is on a relative basis. It has proven very valuable as an early indication that inhibition is effective.

Records

Properly kept well records have proven to be the heart of a successful inhibitor program. The record for each well should include as much of the past history as is available and pertinent. All repair work should be analyzed for cause, labor and material replacements. The inhibitor used, dosage and test results should be entered. Sufficient well data and performance information should be included so that the complete picture of the corrosion problem of the particular well can be readily obtained. The final measure of the effectiveness of corrosion control in oil wells is the reduction of the cost of repairs.

Results

Just as the extent of corrosive attack has varied from field to field and from well to well in the field, so has the response to inhibitors been found to vary. Some fields are apparently more difficult and some wells seem to defy even the otherwise most effective treatment, but with most wells the response has been satisfactory and in many cases, has been dramatic.

The over-all effect of the control program in California can best be illustrated by the results of a survey conducted by the members of the NACE subcommittee TP-1A referred to above. (See Tables I and II attached. This survey was presented at the Annual Meeting of NACE in Kansas City in March, 1954.

Data were collected for 350 pumping wells located in 17 fields, from the records of 14 companies operating in California.

The average well was found to be producing 29 barrels of oil per day and 193 barrels of water per day for an 87% water percentage or cut. The average depth was 3,850 feet and the hydraulic horsepower, 6.3. Of the inhibitors used, 65% were classed as inorganic and the balance as organic. The iron count showed a reduction of 80%. The average period reported before treatment was 22.2 months, and after treatment was 21.1 months. The most significant figures were the total number of pulling jobs before treatment, or 8.6 jobs per well per year, compared with 4.2 jobs after treatment. This is a reduction of 51%.

The number of tubing failures before treatment reported as 3.1 per well per year was slightly less than the number of rod failures or 3.5 per well per year, but the reduction on failures after treatment was

TABLE II
ANALYSIS OF CORROSION CONTROL BY FIELDS (X)

Field	No. Wells	Pump Depth	Gross B/D	Water %	Pulling Frequency—Jobs/Year						Pumps Replaced per Year	
					Rods		Tubing		Total			
					B	A	B	A	B	A	B	A
Long Beach	93	4,180	281	91	4.3	2.6	3.3	1.2	10.2	6.0	3.7	2.9
Huntington Beach	77	3,240	161	79	1.9	.7	2.6	.6	5.5	1.9	1.7	.7
Midway-Sunset	54	2,850	97	82	1.5	1.3	3.7	.6	7.1	3.2	2.7	1.4
Wilmington	33	4,380	272	83	3.7	1.4	4.1	.6	9.7	3.1	3.2	1.3
Santa Fe Springs	28	6,350	310	85	11.7	4.1	1.7	.7	16.6	7.5	5.2	3.9
Dominguez	18	4,980	293	90	3.6	1.5	1.9	1.0	7.8	4.1	2.9	2.2
Elwood	10	4.460	262	88	7.0	5.7	.6	.6	8.3	6.8	.8	.3
Inglewood	10	2,320	73	74	.9	.2	6.0	.8	9.0	2.3	2.4	1.4
Montebello	8	6,070	229	93	3.7	1.6	1.8	1.3	6.8	3.7	5.3	3.1
Miscellaneous	17											
TOTAL	348	3,850	222	87	3.5	1.9	3.1	.9	8.6	4.2	3.1	2.0
Per Cent Reduction						46		71		51		36

B—Before Treatment
A—After Treatment

(X) Taken from "Survey of Corrosion Control in California Pumping Wells" by Frank E. Davie and Preston W. Hill. Presented at the Annual Conference of the National Association of Corrosion Engineers—Kansas City—March, 1954.

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The "toughest inch" consists mainly of A. O. Smith internally expanded, 26-inch welded steel line pipe.

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greater for the tubing (71%) than the rods (66%). Since tubing repair jobs generally cost considerably more than rod jobs, the saving on tubing jobs should be emphasized.

The cost of inhibitor treatment varied widely according to the survey, but averaged above $30.00 per month per well. In order to get some idea of the economic benefits, the labor cost of tubing jobs may be roughly estimated at $200 and rod jobs at $100 each. On this basis the saving in labor cost alone, due to treatment would be about $300 added the value of the reported savper well per year. To this can be added the value of the reported saving in material, 12 joints of tubing and 12 rods per year. Indirect benefits, such as reduction of "downtime," are also appreciable.

The survey results represent the total effect of the inhibitor program, including the failures due to previous corrosion and the misapplication of inhibitors and treatment methods. Field results have already demonstrated that effectiveness increases the second and third year. Thus, in the future, with more field experience, more laboratory investigations, and more corrosive wells under control, we can confidently look forward to a significant savings in operating costs due to effective corrosion control of pumping wells in California.

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*Signal Oil and Gas Company, Los Angeles, California.

**Shell Oil Company, Los Angeles, California

(Presented at the Spring Meeting of the Pacific Coast District, Division of Production, American Petroleum Institute.)

Industry's Inexpendables

By Judge Roger Alton Pfaff

A generation ago manual labor was predominant in American industrial life. Today, technological advancement has rendered most manual labor obsolete. Manpower today is calculated in terms of skilled technicians.

If we speak from a purely materialistic point of view, completely ignoring the important human factors, it goes without saying that industry has a financial investment in its manpower, as well as in its physical equipment.

Much time and money are spent in training men to operate the complicated mechanisms that characterize present day American production. Anything that impairs or impedes manpower efficiency—whether by accident or death—is a loss to industry and production.

In military parlance the foot soldier, including second lieutenants, were considered expendable. Napoleon is quoted as once saying:

"Soldiers are made on purpose to be killed."

Just as modern warfare has created intelligent, technically trained and mobilized infantry, rendering the foot soldier obsolete, so has American technology eliminated the old-time pick-and-shovel man.

American industrial manpower is **not** expendable.

But just as the horseless carriage replaced Old Dobbin and inaugurated mass suicide on our streets and highways, so the massive machines of industry have become cruel weapons that maim and murder millions each year.

Are we to become the masters or the minions of these great mechanical and chemical giants? Are these mighty mechanical monsters to murder or to emancipate man?

Are we to suffer the fate of Dr. Frankenstein, who was destroyed by the monster he created?

We are all disturbed by the atom and hydrogen bomb. Plans are afoot on how to best evacuate a large city in the event of an atomic attack.

Yet last year there were nearly 10 million Americans killed, maimed or injured as a result of accidents. That is the equivalent of every man, women and child in the entire State of California.

The cost of these accidents was nearly 9 **billion** dollars.

During the recent Korean war, the tragic casualties were front page news; yet in the same period of time we killed nearly **four times** as many of our fellow Americans with automobiles alone.

What are the principal causes of this staggering loss of life, limb and property?

In the field of traffic safety, I once outlined the seven deadly sins of driving. They were, in order of importance: speed, liquor, discourtesy, reckless or irresponsible driving, carelessness, including fatigue, physical defects, and mechanical defects.

With your indulgence, let me present what I consider the seven deadly sins of industry, relating to safety precautions.

1. Inadequate indoctrination:

The first 3 to 5 months are shown to be the most dangerous period to an employee in industry. Although inexperience will always create hazards, the accident potential can be sharply reduced when safety training is coordinated with job training.

2. Superficial safety supervision:

Management must be constantly alert to the importance of safety precautions at all times. Vigilant supervision must be maintained.

Too often the safety program consists of printed admonitions, but actual supervision is superficial. It is imperative that what is preached must be practiced.

3. Emotional instability:

Whatever the cause, whether it be a disturbed family life, illness, financial worries—the man with his mind divorced from his task, par-

There is no substitute for GOOD CORES and these REED CORE DRILLS get high percentage recoveries of good, clean cores!

There is no substitute for the information good cores can provide. With good cores, you can accurately define the depth and thickness of each formation. You can determine the hardness, permeability, porosity and other characteristics of every formation and you can even estimate the slope under certain conditions. You can analyze a promising sample for the presence of oil or gas. By studying the structure, you can foresee many of the production problems that might be encountered.

The precise information available from cores, when used in conjunction with seismograph surveys and other records, affords the quickest possible way to map oil bearing formations.

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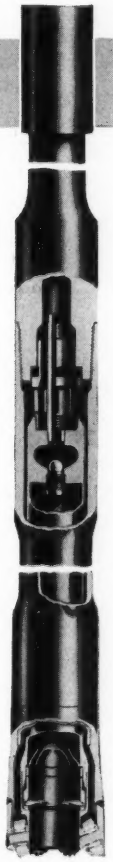

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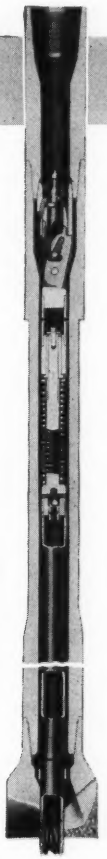

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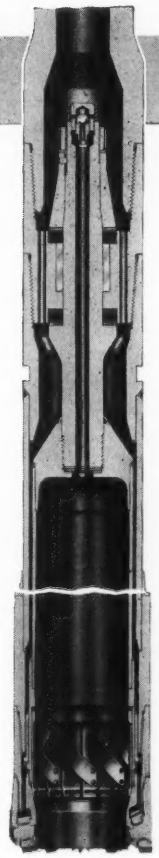

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ticularly where he is operating machinery which can place his life or others in jeopardy, should be assigned to some other task or temporarily relieved of his duties.

This again emphasizes the necessity of a close relationship between supervisor and employee.

4. Fatigue:

This may be due to many causes.

Monotony in employment itself can create fatigue.

But whatever may be the cause, the industrial worker suffering from somnambulism on the job is looking for an accident.

Also, we should not overlook what used to be called "Blue Monday", which was used to describe the sodden brains and aching heads on the Monday following a so-called "Lost Weekend".

5. Bad plant morale:

Safety is everyone's responsibility. There is no such thing as overlooking an apparent danger on the ground that it is someone else's job. Safety also depends on everyone's setting an example, for personal acts of safety speak more eloquently than words and impress and encourage others to do likewise.

6. Physical defects:

Modern machinery demands operators who are mentally and physically alert. Any physical disability which impairs the fullest function of a worker, including poor reaction and other impairment due to age, should be the subject of continuous evaluation and immediate steps should be taken to rectify any such condition.

7. Mechanical defects:

Although it has been said that today faulty physical equipment contributes to only approximately 10 to 15% of industrial accidents, nevertheless it should not be completely discounted and every effort should be made to make machines as safe as humanly possible.

There is no easy answer to the problem of safety and the reduction of accidents. We can say, though that accidents are not acts of God, but rather are acts of man, and in most instances could have been avoided.

If we could develop a slogan here this evening, it might be: "Make Safety a Habit".

We talk a good deal about being safety-conscious. What in reality we should become is safety unconscious. In other words, the habit of safety should become so ingrained in our daily lives that it becomes second nature, an involuntary act.

The only way to develop a habit is by doing a thing repeatedly to the point where we do it without thinking.

In traffic safety we must develop the habit of prudent and courteous driving and we must convince a whole new generation of Americans that this type of driving is the distinguishing characteristic of a lady or a gentleman.

Industrial safety can only come by indoctrination, education and supervision.

To say that nothing can be done to reduce the tragic toll of 10 million accidents and 9 billion dollars' damage per year is to admit that we are incapable of solving a solvable problem.

It is men like yourselves throughout the country, who are interested in and are devising means to conquer this safety problem, who will assure that American manpower will be INDUSTRY'S INEXPENDABLES.

Address at Safety Banquet, Producing Department, Standard Oil Company of California, Los Angeles

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Fluor to Build Refinery at Formosa

Mr. K. Y. King, president of the Chinese Petroleum Corporation recently entered into contractual agreements with The Fluor Corporation, Ltd., Los Angeles, California for the engineering, equipment procurement, and construction supervision of a Socony Type-45 thermofor catalytic cracking unit for the Chinese Petroleum Corporation at its Kaohsiung refinery, Taiwan (Formosa).

Charge stock to the unit, which is to include a feed preparation and gas recovery system, will be 10,000 barrels-per-day, from which 6500 barrels-per-day of distillate will be charged to the cat cracker reactor.

The Chinese Petroleum Corporation has been processing crude oil imported from the Middle East, in addition to small quantities of indigenous crude oil. The catalytic cracking unit engineered by Fluor is part of an extensive expansion program at the refinery.

Fluor will begin engineering work immediately, with completion scheduled during the first half of 1955. Kaohsiung is located on the southwest coast of Taiwan.

Standard Contracts for Two Refining Projects

Contract for design and construction of twin catalytic reforming plants at Standard Oil Company of California's Richmond and El Segundo refineries has been awarded to the Bechtel Corporation, it was announced recently.

The two projects, scheduled to get under way immediately, comprise the nucleus of a $30,000,000 refinery program designed to increase substantially the quality and octane ratings of Standard's motor gasolines. Both plants are expected to be ready for operation by the spring of 1955.

Construction of the new reformers will enable upgrading of gasolines to qualities not normally reached. The over-all program anticipates a continuation of the trend toward higher-powered auto engines, the company explained.

New Mexico

Southern Union Gas has staked location for the No. 1-C Jicarilla, nw se se 11-26n-4w and No. 1-D Jicarilla, se nw nw 32-26n-3w, in Rio Arriba County. Superior Oil will drill the No. 2-3 Hightower, nw se se 3-25n-7w. All are Pictured Cliffs tests.

In Colfax County, Continental Oil was getting ready to drill the No. 2 St. Louis, Rocky Mountain and Pacific, s½ se ne 26 31n-21e as another step in evaluating a block of leases acquired by this company.

Morales Field Well Producing

M. V. Kahler's No. 3 well on Section 10-11n-28w in the Morales field of San Luis Obispo County is in from 2203 feet for a yield yet to be accurately evaluated. No. 4 on the section is drilling below 2000 feet with work in charge of Gene Reid Drilling Company.

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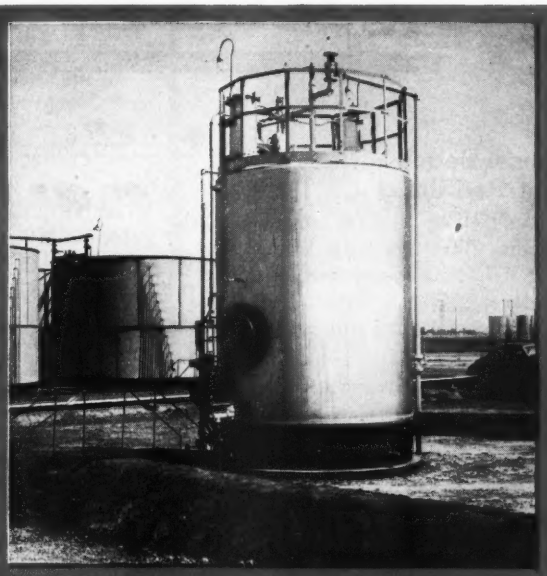

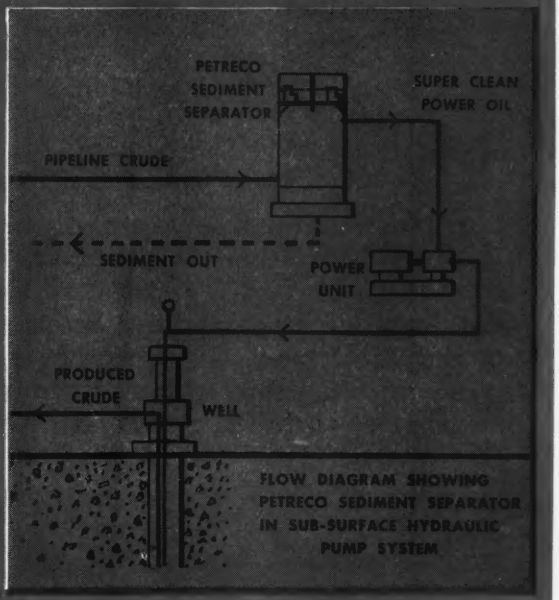

FLOW DIAGRAM SHOWING PETRECO SEDIMENT SEPARATOR IN SUB-SURFACE HYDRAULIC PUMP SYSTEM

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Field Development

Sunset Beach Test Redrilling

Redrilling at last reports had reached 7000 feet with Burt Aston's B & F-Lomita No. 1 wildcat on Section 19-15s-11w at Sunset Beach. The project was carried originally to 8707 feet.

West Newport Still On Pace

West Newport field in Orange County is showing no diminution in development activity. A new well has just commenced under the banner of Victor W. Posta as operator of Jackson No. 1 near the intersection of Bushard and Hamilton street on Section 18-6s-10w. The operator has another drilling job in the field at the final stages. On the same section, Miller Drilling Company's latest well, Fairview-Miller No. 2, is pumping an estimated 50 barrels a day from 2042 feet. Between West Newport and Huntington Beach, the C. D. Cunningham, Operator, Plavan No. 1 on Section 1-6s-11w has gone the way of all dusters at 5660 feet.

Yolo County Widely Scanned

Yolo County at present has not less than a dozen wells at various stages in careful examination of areas here and there potentially promising or in the routine development phase. In the Winters sector, Universal Consolidated Oil Company is all set to peer and probe for production with its Wallace No. 1 wildcat on Section 12-8n-1w. In the Madison area, Shell Oil Company is about to spud-in its R. F. Ruff No. 64-17 on Section 17-10n-1e. The W. W. Holmes, Operator, Mohawk-Bemmerly No. 1 on Section 10-11n-1w at North Dunnigan Hills is still in the preliminary stages. On Section 4-11n-1e in the Dunningan area, Signal Oil & Gas Company's Monterey Bell No. 1 is drilling above critical levels. Location is one and one-quarter miles northwest of Standard's Cordelia Walker Estate No. 1, which went to 6258 feet in a vain wildcat effort. Signal has two producers shut in. The are Signal-Monterey-Reclamation No. 2 on Section 20-12n-1e at Dunningan Hills, and Signal-Monterey-Reclamation No. 3 on Section 29-12n-1e at Sycamore Slough. They are bottomed respectively at 3780 and 5500 feet. Stuck drill pipe has put a temporary stop to drilling at 13,321 feet with General Petroleum's Glide Court No. 1 on Section 10-7n-3e in the Saxon neighborhood. In the Woodland Farms sector. Amerada Petroleum Corporation is drilling 6000 feet or more with its Woodland Farms No. 1 wildcat sitting on Section 27-9n-3e. Northwest of Thornton, Humble Oil's Stephen F. Haringer No. 1 on Section 9-6n-4e keeps digging at 3400 feet. Ohio Oil Company is busy in Yolo County, too. Georgia Chapman No. 1 on Section 31-9n-1w at Chickahominy or one and one-half miles north and east of the Pleasant Creek is making hole below 1500 feet. W. R. Chapman No. 1 wildcat on Section 4-8n-1w is digging at 4400 feet.

Fillmore Wildcat Quits Down Deep

Ventura County's widening exploration play hit a snag the other week when The Texas Company's Kenneth

(Continued on Page 24)

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Riverside County Leasing Solicited

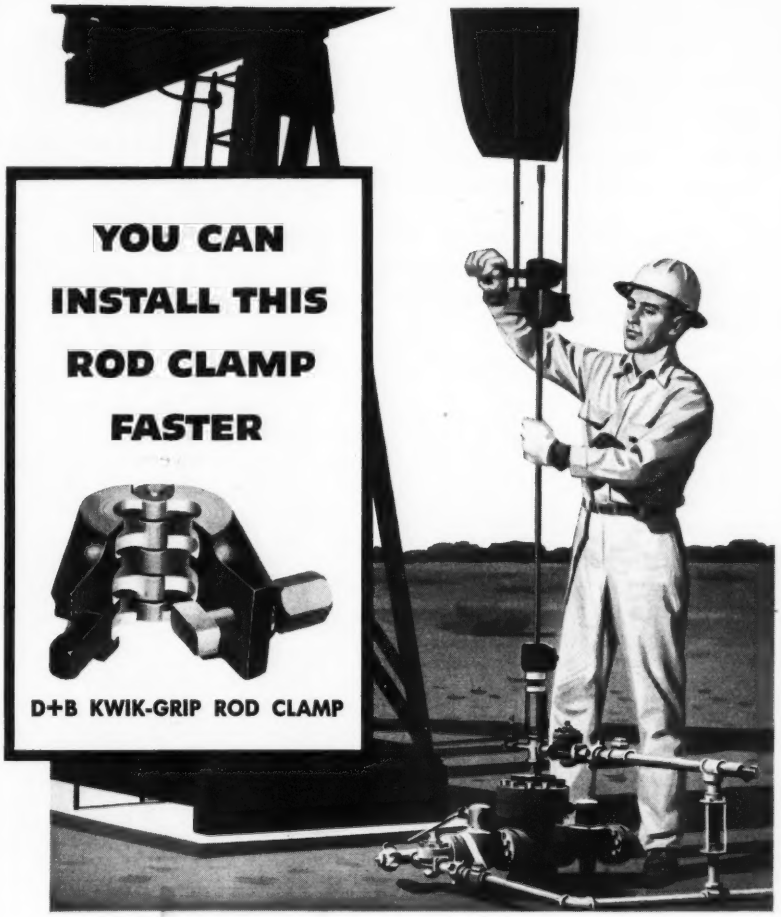
Oil operators are understood among those bidding for leases on seven tracts of land, embracing 2080 acres, on the Agua Caliente Reservation, Riverside County, offered by the Bureau of Indian Affairs. Bids will be opened at the Palm Springs subagency on June 28. Reports indicated no change of the inactive status at 520 feet of S. V. Smith's Haskell No. 2 wildcat well on Section 35-2s-2w in the county's San Timoteo area.

Bandini Third Producer Flowing

General Exploration Company can now congratulate itself for clicking with the third producer out of a total of four wells taken down to date in the Bandini sector of East Los Angeles. This was registered when the company's CCMO No. 3 on Section 17-2s-12w came in for a current yield of 236 barrels of 40 gravity oil, cutting about 25 per cent, and 962,000 cubic feet of gas each 24 years. Open is the Nordstrom sand at 5395-5600 feet, which for many years has met the demands of oil operators in the nearby Santa Fe Springs field, but a new source of production for General Exploration at Bandini. Two prior producers came in several hundred feet deeper into the Buckbee. CCMO No. 4 on Section 12 near where O'Neill avenue and Sheila street intersect, is well on the way to implied success. General's lone failure in the area was CCMO No. 2, some 2000 feet from where the discovery was made. This test penetrated a fault and on a concluding trial was definitely wet. In addition to General, Basin, National, Bolsa Chica, Union, Christopher and C. G. Willis hold interest in the play. Brown Drilling Company, a top drilling contractor, is doing the work.

Canoga Park Wildcat Area

Of more than ordinary interest is Wallace M. Nelson's Lunnon No. 1, wildcatting on Section 4-1n-17w in the Canoga Park area of Los Angeles. The ground under test for sometime has held the favorable regard of several geologists from a prospective oil standpoint.



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(Continued from page 22)

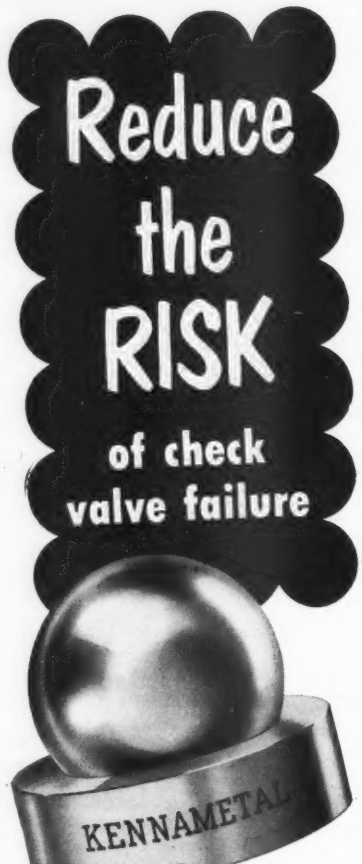
H. Hunter-River Ranch No. 1 on Section 36-4n-20w, south of Fillmore, turned toes up at 10,110 feet. The wildcat was a focal point of interest because it was no great distance from Standard's important discovery some months ago on the Sespe Rancho near Fillmore. This well opened what is now known as the Fillmore field by coming in for more than 500 barrels of net 27.2 gravity oil a day with 457,000 cubic feet of gas to boot. Observers of The Texaco effort were hopeful that something along the lines of the Standard success would be found through the medium of the Hunter-River Ranch project. Northwest of Torrey Canyon, The Texas Company's Baker-Hunter No. 1 on Section 31-4n-18w is way down below 12,600 feet. At old Eureka Canyon, another Texaco enterprise named Sloan No. 1 and on Section 32-4n-18w is drilling and looking close to 9500 feet.

Santa Barbara Wildcats Work

The latest wildcat wells to get under way in Santa Barbara County are California Southern Oil Company's Capitan No. 1 on Section 33-5n-30w in the Capitan area, and The Texas Company's Pata No. 1 on projected Section 2-5n-34w at Salsipuedes Creek. At Point Arguella, Stansbury-Webb & George J. Greer, Trustee, Spanne No. 1 wildcat on Section 16-6n-34 continues to dig at 5000 feet. In the Lompoc area, Chieftan Oil Company's Larsen Bros, test on Section 19-6n-34w is down 700 feet or so. Northwest of Lompoc Union Oil's Arkley No. 23-20 on Section 20-8n-34w is moving ahead beneath 1500 feet. On the subject of Lompoc, Johns-Manville is planning construction of a new plant there for a new line of products from diatomite, the fossilized remains of tiny marine plants.

Tapo Canyon Wildcat Staked

Between the South Tapo Canyon field and old Tapo Canyon, Union Oil Company has staked location for Simi No. 11 on wildcat ground on Section 1-3n-18w, Ventura County. Three miles south of the Simi field, Webb Oil Company's Runkle No. 1 test on Section 14-2n-18w is drilling with cable tools at 900 feet, plus or minus. Before leaving news of Union field operations, it may be of interest to jot down that the company's earnest effort for new production on old Mission land near Aliso Canyon found nothing commercial to 10,295 feet. The well was named Ex-Mission No. X-10 and on Section 9-3n-22w. Recent discoveries of the company recently made elsewhere than in California, include a find at Sturgeon Lake in Alberta, Canada, and in Nolan County, Tex.



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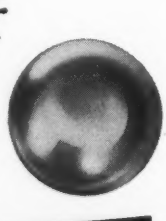

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PUTS AN END TO DOWN THE HOLE CHECK VALVE TROUBLE

West Mountain Wildcat Completed

Flowing an estimated 500,000 cubic feet of gas daily, William M. Thornbury has completed his Henderson No. T-2 wildcat well on Section 23-3n-21w in the West Mountain area at a plugged depth of 1300 feet. Total bottom is 1607 feet, with 7-inch casing set at 1213 feet. Contractor Miller & York at last reports was digging at approximately 4800 feet with the Stansbury, Inc., Lee No. 1 exploratory project on Section 5-5n-19w at Squaw Flats, Ventura County. The Hidden Valley wildcat of James M. O'Hern on Section 29-1n-19w is a no dope well, last known drilling around 6000 feet. McMahan is its proud Irish name.

Petrolia Set For New Test

Brookline Oil Company of Los Angeles, whose current out-of-state activity includes a well in the Gunnison area of Utah, is understood planning further test drilling in the Petrolia area of Humboldt County. Mattole Oil Company's Chamber No. 1 wildcat on Section 21-1s-2w is about ready to resume drilling operations at 625 feet with a new rotary outfit. On the same section, West Coast Oil Corporation's West Coast No. 1 test is down 1785 feet and reported preparing to deepen with cable tools.

Colusa Gas Test Drilling

Honolulu Oil Corporation has got going with its Honolulu - Humble - Cauzza No. 1 explorer on Section 18-17n-1w in the Colusa area of Colusa County and not many miles north and west of the Colusa gas field.

(Continued on Page 26)

Seal Beach Island Exploration Continues

Distinctive as California's first tideland drilling from an island made by man and fixed permanently offshore, Monterey Oil Company has arrived at presupposed objective depth of 7000-9000 feet with its Monterey-The Texas Company-State No. 3 on projected Section 22-5s-12w, Orange County. Brown Marine Drilling Company aiso qualifies as the first contractor to take down a well from such an island in the state. Work in tidal water in the past has been carried forward from drill sites on shore with wells directed oceanward by slant holes, or from piers or anchored barges. Ernie Pyles, Monterey Oil Company vice president, recently announced that other than depth the project was "no dope." Moreover, he let it be known that the island operations were viewed as a pilot phase and a guide to more expansive work in the future. The well now going deeper is a vertical job, with the second and third followups due to reach out directionally for additional geological information and data enough to warrant enlargement of the island for full-scale development. Location of the island is about 600 feet from the proposed Seal Beach breakwater. In the event a larger island is constructed, the water gap now existing between the present isle and the breakwater would be filled-in and connected. Monterey and Texaco hold approximately 1200 acres of submerged land under lease in the area. Three wells taken down by slant drilling beneath the ocean floor from littoral sites some years ago confirmed a producing structure there abouts. One of these tests of yesteryear has been disposed to give out 30 barrels of 26 gravity oil a day since 1948 from a pool one and one-half miles seaward in the blue Pacific.

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Bowen Kingston Fishing Magnets are used to retrieve all types of small objects having magnetic attraction such as bit cones, slips, milling cuttings, tong pins, hammers, etc. These odd shaped, undrillable objects gather at the bottom of the hole as a result of tool failures and milling jobs or are accidentally dropped down the hole. Such objects cannot be engaged in any conventional manner and in many instances can be engaged and retrieved only with magnetic attraction.

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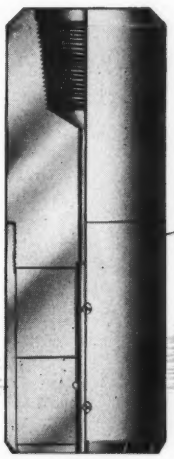

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Wire line operations have the advantages of speed and economy. Pipe operations have the great advantage of circulation, which can be used to eliminate settlings above the fish and to loosen the fish.

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With proper care, the life of the Magnets can be prolonged indefinitely. Keepers are furnished with each Bowen Kingston Fishing Magnet to prevent magnetic dissipation while the tool is not in use. The magnetic attraction holds the Keeper in place and Cap Screws are provided to jack the Keeper off the Magnet.

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Beverly Field Test Still Works

Universal Consolidated Oil Company's Twentieth Century-Fox No. 2 test on Section 25-1s-15w in the Beverly field, which during present redrilling operations has been delayed by two fishing jobs, is nearing original depth of 8846 feet. Some months ago, Universal broadcast discovery of a new pool in the field at 7000 feet. The company up to now has more than 200 acres in the area. Signal Oil & Gas Company, by the way, has wound up its leasing program in the area. Leasing was initiated by Canon Development Company of Beverly Hills. Signal later completed a deal with Canon to take over the assigned ground. Fifty acres or more compose community leases included in the play, mainly east of the motion picture studio property.

Huntington Beach Test Moving Ahead

Wilson Oil Company of Minnesota is taking down Mills No. 1 wildcat test on Section 13-6s-11w in the Huntington Beach area. Officers of the company, which maintains California headquarters in Anaheim, are Earl Wilson, C. C. Peterson and D. E. and Henry J. Lynch.

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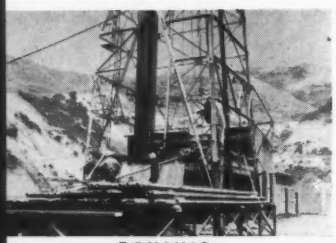
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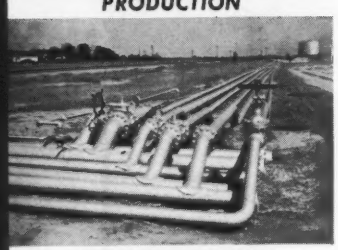
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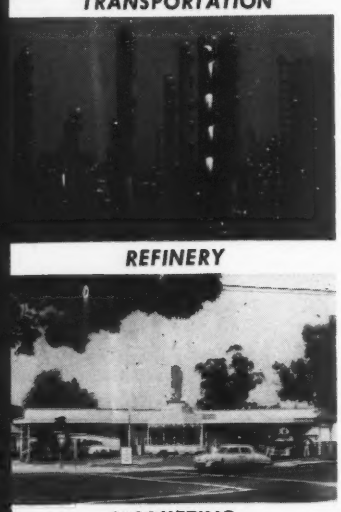
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TUBULAR PRODUCTS

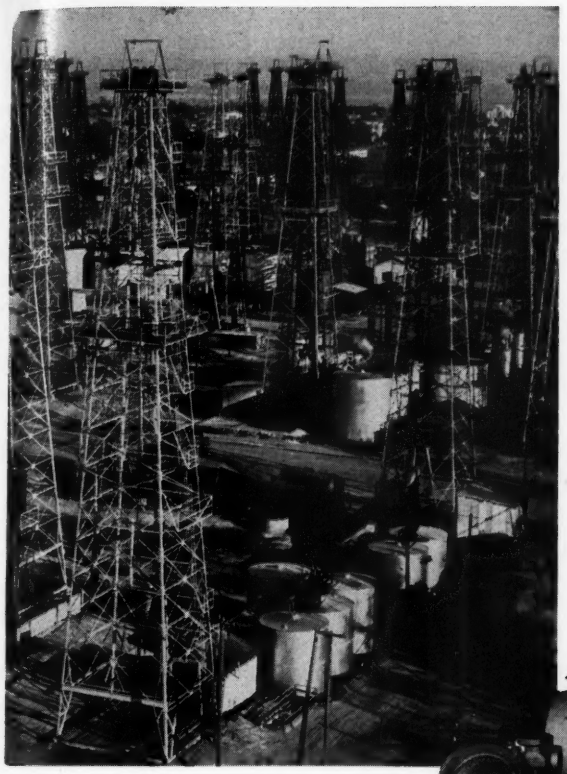
General Petroleum won credit for opening production at Colusa Back in 1943 with its Capital Company No. 1 on Section 15-16n-1w for gas in quantity from a zone just below 2950 feet of Cretaceous age. During the years since the discovery, the original well went from good to bad and then to trivial yield and consequential oblivion. A glance at the map, indicated the Honolulu well is about three miles south of Princeton where gas production is no stranger. Southwest of the town of Martinez in Contra Costa County, Lightning Oil & Gas Company are taking a crack at new production with Almond No. 1 on Section 31-2n-2w.

Liberty Cut Test Drilling

Arcady Oil Company is drilling a few hundred feet below topsoil with its Fahn No. 3 extension test on Section 9-5n-3e at Liberty Cut in Solano County. Location is 1000 feet east and 500 feet north of the company's Fahn No. 3 new field discovery last November. The find started off at the rate of 2,000,000 cubic feet of gas a day through a restrictive 10/64-inch choke from 4128 to 4138 feet. Brown Drilling Company is guiding the new job. Engineering is in the hands of Kemnitzer, Richards & Diepenbrock. In the Honker Bay area of the county, Union Oil has set in motion its Dow-Ward No. 2 on Section 30-3n-1e. It is being drilled directionally from the same location as Union-Brazos Ward No. 1, standing suspended since September of 1953. This earlier test went to 8966 feet before being plugged back to 6950 feet. Put to test, the project reacted with a flow of 1,250,000 feet of gas a day from sand between 6873 and 6883 feet.

Ventura Avenue Field D-8 Zone Well Testing

British American Oil Producing Company and Bolsa Chica Oil Corporation's Hartman Unit No. 3 well on a 60-acre lease in the Ventura Avenue field is being allowed to flow for a more revealing picture of the true ability of the project. The well was completed several weeks ago as the combination's first D-8 zone development well and due to a water cut was disappointing. At last gauge,



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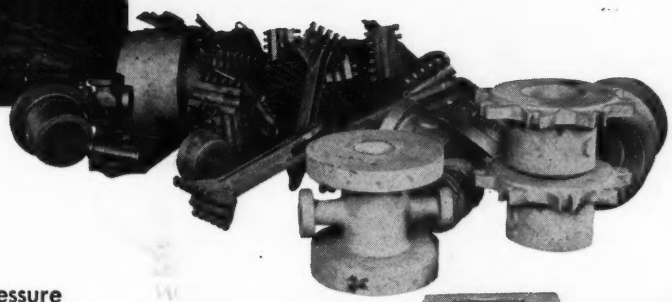

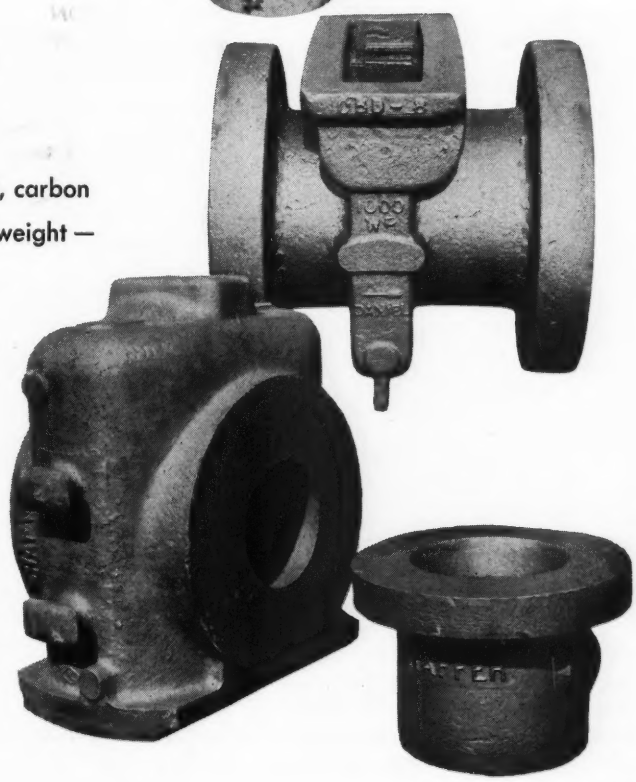

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yield was about 150 barrels of net crude oil a day. The deep rights on the lease are held by British American and Bolsa, with the former owning a 60 per cent interest and the latter the remainder. Total depth of Hartman No. 21 is 12,300 feet.

Arroyo Grande Test Scheduled

Western Empire Petroleum Company, which is drilling above 1000 feet with Church No. 1 wildcat on Section 33-5n-19w at Sespe in Ventura County, is preparing to embark on a hunt for new oil on Section 29-31s-1e in the Arroyo Grande area, San Luis Obispo County. At Morro Bay in San Luis Obispo County, Tide Water Associated's Montadoro No. 1 test on Section 3-31s-10e is digging at 4100 feet. Rushing Drilling Company is the contractor.

Tejon Development Gains New Drilling

Carving ahead a couple of thousand feet below grass roots is Union Oil Company's Reserve-Hay No. 11-24 wildcat on Section 24-11n-19w in the Tejon Flats area, north of production in the Tejon field. Union's drilling calendar prescribes oil sand or basement for the test which is a story that should be written in no more than 8000 feet. Place of the current explorer is one-half mile northwest of Union's initial deep tester at Tejon, named Reserve-Kerr No. 46-24. This earlier project was finaled 15 months ago for a trivial discovery in Lower Miocene sand near 6900 feet. Richfield, meantime, is drilling at 3800 feet with its Tejon No. B-53-34 test on Section 34-11n-19w, a southeast offset well to the Reserve-Pauley recent discovery. Approximately 600 feet of the find, the same Reserve Oil and Gas Company-Edwin W. Pauley operating combination appears to have duplicated success attained by the discovery with their followup job, No. 32-34. The project topped oil sand at 5624 feet and is running somewhat higher on structure than the venture that poked into a fresh pool for the area. An interesting sidelight to the No. 32-34 is the fact that years ago it went into discard at 4900 feet or approximately. When the discovery was confirmed thoughts quickly veered to the old duster and its inherent possibilities if deepened to a depth comparable with level producing in the first well, the interval of 5675-5743. This earlier wildcat, from the record, was spudded in December of 1942 and abandoned about six weeks thereafter in January. Four miles north of the Tejon Hills field, General Petroleum is working with its SP-Tejon No. 16-3 wildcat on Section 3-11n-19w in the San Hill sector, where the company holds no less than 5000 acres.

South Greeley Wildcat Deeper

Two or three hundred feet below the 10,000-foot level is the present position of Sunray Oil Corporation's Sunray-Western Gulf KCL No. 21-30 wildcat on Section 30-29s-26e in the South Greeley area. The climax at this location will come to pass any day now. The same general area also is the setting of a wildcat well known as Houghton No. 1 and located on Section 29-29s-26e. It is drilling under the sponsorship of Western Gulf Oil Company and it is aimed for production in the Stevens oil sand zone around 9000 feet.

Temblor Hills Play Interesting

In addition to Pacific Western Oil Corporation, the actual operator, Southern California Petroleum Corporation and St. Anthony Oil Corporation share interest in the current exploratory play in the Temblor Hills of Kern County. The new test will be Hagood No. 47-2 on Section 2-30s-20e and northwest of the Belgian Anticline field. Production is being sought in the Phacoides and the Point of Rocks zones. Accurate results of Hagood No. 43-12 on Section 12 is yet to come.

Midway-Sunset Wells Abandoned

Oceanic Oil Company has pulled out of two test wells in the Midway-Sunset area. They were CWOD No. F-1A-17 on Section 17 and CWOD No. 11X-15 on Section 15-32s-23e. They were abandoned at respective depths of 3902 feet and 7638 feet.

Superior Starts Kern County Tests

Operations have commenced in two new Superior Oil Company wildcats of some importance. They are Cymric Unit No. 2 on Section 22-29s-2e, a sequel to a deeper pool discovery a year ago, and Anderson No. C-1 on Section 25-29s-20e at Temblor Vista. The Cymric venture is a northeast offset well to the company's Cymric Unit No. 1, completed last August for good production from the Second Point of Rocks sand in a 65-foot interval roughly between 6500 and 6600 feet. The Temblor Vista test is eager to give an inquisitive look to a sand lying near 3000 feet. This zone evidently showed up in a test undertaken by Superior and tagged Anderson No. 31-30, which after everything was considered was relegated to abandonment slightly below 5000 feet last March. In the Shafter area, Superior is approaching 12,000 feet with its Russell No. 73 wildcat on Section 17-28s-25e. The drill site is one mile east of the project Tide Water Associated wrote off the other month at 12,563 feet. Tide Water Associated, incidentally, is mainly concerned with establishing new gas production with its Stone No. 1-18-1 on Section 18-28s-25e, the upshot of gas showing near 4300 feet in the deep and abandoned well.

Alferitz Anticline Wildcatting Terrain

It is not expected that Hancock Oil Company will go much beyond 5000 feet with its Hancock-M J M & M-CCCMO No. 34-24 wildcat drilling on Section 24-25s-18e, southwest of the Alferitz Anticline in Kern County. Location is two miles southeast of the discovery chalked up by Carlton Beal & Associates last December, which poked into new oil production at 4865-4591 feet with a well known as Kalloch No. 56-11. Hancock's well is on a farmout from M J M & M Oil Company of San Francisco. Less than a half-mile west of the discovery well, Carlton Beal & Associates' Miller-Bump No. 6 on Section 11-25s-18e is just about at objective depth around 5000 feet. The oil finder was completed from 4590 to 4866 feet for 570 barrels of 31 gravity crude oil daily.

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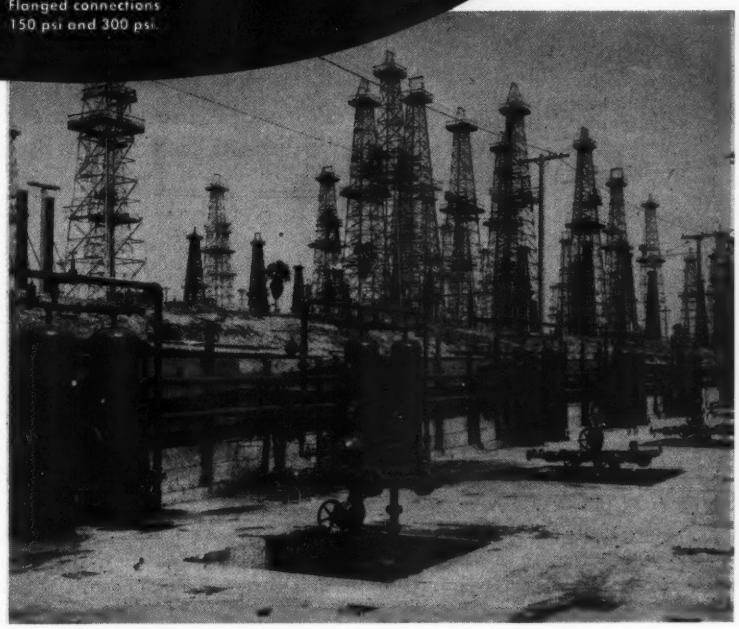

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Bits of This and That

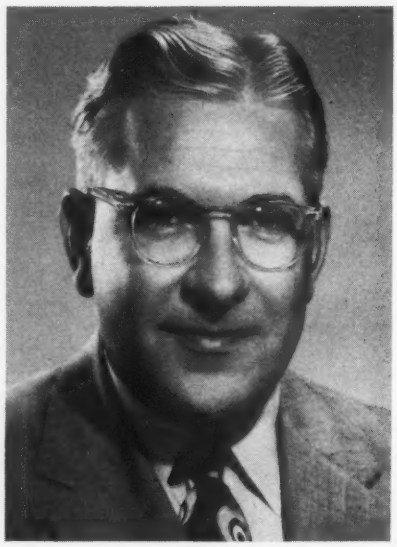
We hear tell that there are some new petroleum clubs in the offing. A group of Long Beach people is talking of taking over that old house on the top of Signal Hill and fancying it up a bit. Slim Fowler, Lee Foust and several others are pushing the project. Another one is in prospect up in Bakersfield with Robbie Robison being one of the prime movers. That's all we know of them at the moment but will have a more complete report one of these fine days. We are going to have to miss the CNGA summer frolic this year for the first time in a long while. We hate like sixty to do that for these affairs are usually tops. However, we shall hope to get the sordid details from Ed Millett and pass them along at a later date. In conclusion, have you heard about the wealthy Texas oil man who built himself a home with three swimming pools on it? One with salt water in it for people who like sea bathing; one with fresh water in it for people who like fresh water bathing; and one with no water in it for people who hate swimming.

Teague Elected NIAA President in L. A.

Vincent J. Teague, Advertising Supervisor, The Fluor Corporation, Ltd., Los Angeles, was elected president of the Southern California Chapter of the National Industrial Advertisers Assn. (NIAA) for the coming year. He was formerly Treasurer of the organization and served on the National Finance Committee.

Other members newly elected are James Gerrard (Beckman Instruments) First Vice President; Gerald Holtz (Farr Company) Second Vice President; Nelms Thomas (Chiksan Company) Third Vice President; Ed Leffler (Publishers Consultants) Secretary; Clarence Davenport (The McCarty Company) Treasurer. Board members are Dan Ebberts (Dan Ebberts Advertising), Clyde Graham (Clyde D. Graham Advertising), Joe Allen (Mc-Graw-Hill Publishing).

Teague attended Washington University (St. Louis) and UCLA, majoring in Business Administration. His early background was in-



Vincent J. Teague

vestment banking, with Security First National Bank of Los Angeles for 10 years. From 1941 through 1947 he was associated with Hughes Aircraft Experimental Division. Five years ago he joined Fluor in the Electrical Engineering Group and two years later was selected to head up Fluor's Advertising. He was the Southern California Chapter's delegate to the national convention in Pittsburgh in '53, and attended the NIAA New York Conference on Finance in January of this year.

Petreco Announces Electric Sediment Separator Booklet

The Petreco Division of Petrolite Corporation announces the publication of an illustrated booklet descriptive of the new Petreco Electric Sediment Separator. The booklet describes the sediment separating equipment, and gives details on how it increases the life of sub-surface hydraulic pumping equipment by preventing wear and abrasion caused by inorganic solids in power oil.

The booklet is available without charge. It can be obtained by writing to Petreco, either at P. O. Box 2546, Houston 1 ,Texas or 1390 East Burnett Street, Long Beach, California.

Guijarral Hillls Listing for Drilling

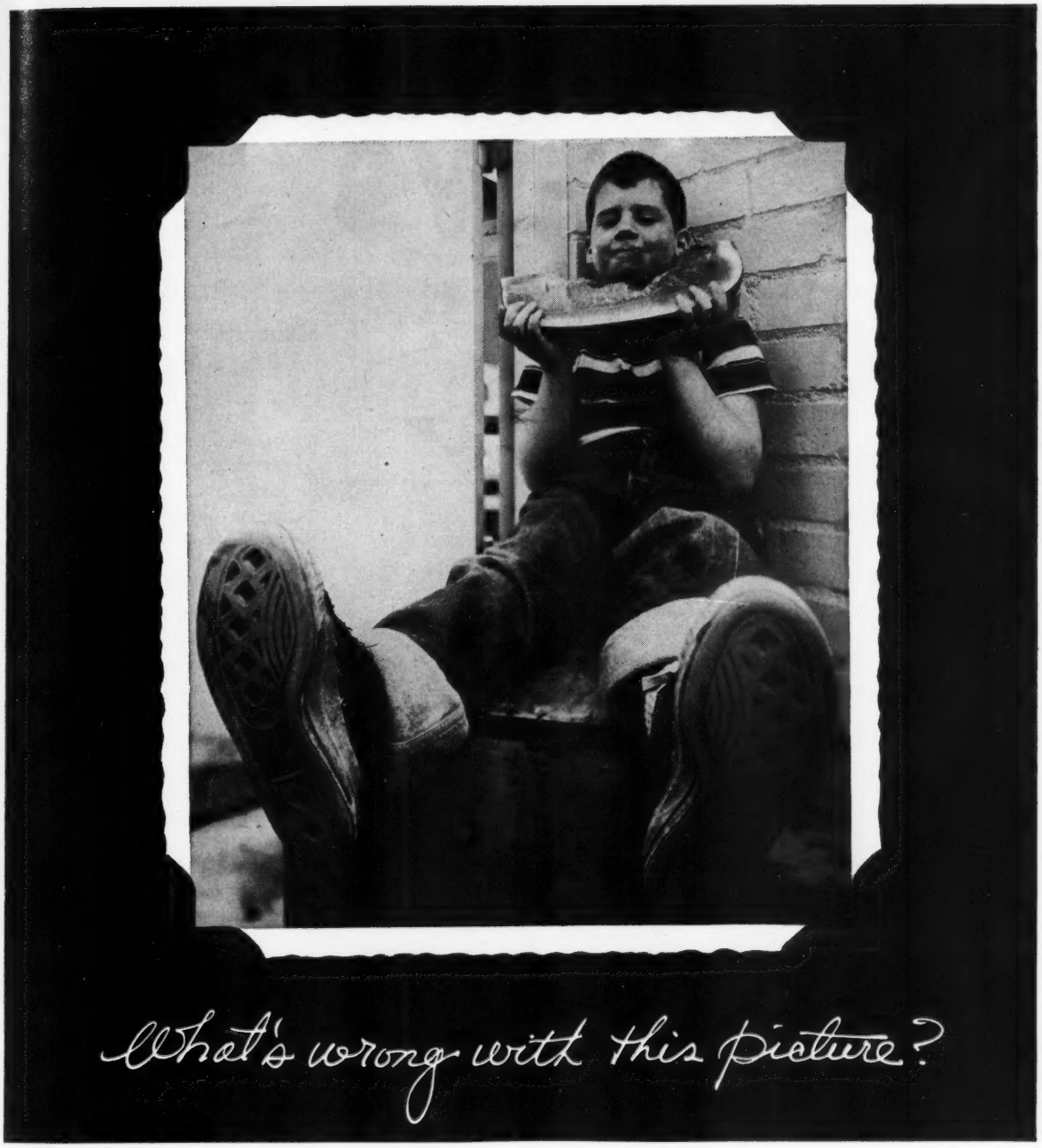
One mile southeast of his No. 72-32F field discovery, Lloyd A. Harnish is drilling in the relatively shallow formation with No. 81-4H on Section 4-21s-16e at West Guijarral Hills. Drilling chores are in the hands of Green & Heiser. On Section 21-20s-16e, the Los Nietos Company has abandoned at 8923 feet its Guijarral Service No. 78-22 test. In the North Guijarral Hills field, Union Oil has brought in its Whittemore No. 25-26 well from 8867 feet for an initial output of 1765 barrels of 38.3 gravity oil daily. The new producer is among other wells on property leased from J. E. Whittemore, leading resident and club man of Montecito.

Tulare County Drilling Spurred

New and increased drilling seems the order of current events in Tulare County. The newest wells to open work include Verde Oil Company's Janis No. 1 on Section 34-22s-27e, C. Earl Stoner's Stoner No. 1 on Section 16-22s-27e, Navy Oil Company's Navy No. 1-A on Section 25-22s-27e and Andrews & Lancaster's Staley No. 1 on Section 26-22s-27e. All care in the Terra Bella area, where Andrews & Lancaster recently abandoned Parish No. 1 on Section 16-22s-27e at 1069 feet and J. W. Douglas is pump testing his Hornbrook No. 1 on Section 27-22s-27e. Five and one-half miles southeast of Corcoran, C. W. Colgrove has abandoned Green No. 48-26 wildcat at 5427 feet.

Atascadero Test Resumes Drilling

Following cleanout operations, S. E. Hogue is deepening from 1180 feet the Hogue No. 1 wildcat on Section 26-28s-12e near Atascadero, San Luis Obispo County. At Fern Canyon, Intex Oil Company's Sauret No. 1 on Section 25-26s-11e is idle at 1756 feet. Neaves Petroleum Development's Neaves-Elkhorn No. 3 on Section 23-32s-22e is likewise inactive at 2242 feet. No dope but 4500 feet down is the present chapter of the story of Elmer C. von Glahn & Associates' Washburn No. 1 test on Section 36-32s-20e at South Carrizo. Gibson Drilling Company is the contractor. Seaboard Oil has its Government No. 34-4 wildcat venture going on Section 4-30s-20e in the Temblor Range.



What's wrong with this picture?

You probably have a snapshot like it in your own photograph album.

It happens when you get too close to your subject, and the camera can't handle the perspective.

In another sense, you can get an equally distorted picture of the modern corporation. For viewed too close-up, it frequently looks bigger than it is.

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In 1953 we looked much bigger because we did a whopping $325,000,000 volume. *But this was only 13% of the petroleum business in the West.*

Certainly we've grown. We've *had* to grow to serve a bigger market, to meet increased competition and to satisfy more consumer needs. *But in proportion to the total business, we aren't as big as we were 44 years ago.*

Seen in perspective, the picture is clear: Union Oil, like so many so-called "big" companies, is really getting smaller all the time!

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Rocky Mountain NEWS

Colorado—Idaho—Montana—New Mexico—Utah—Wyoming—Western Canada

Wyoming

The Wyoming Oil and Gas Conservation Commission has issued an order for 40-acre spacing of oil wells in Weston County. The action followed a hearing on the request of some 20 operators in the field. The order covers acreage in part of the Hampshire, Black Thunder and Clareton areas.

In a two-hour test of the Newcastle sand, Great Basins Petroleum encountered a flow of 20 barrels and 30 barrels an hour at No. 11-16 State, c nw nw 16-39n-66w, Niobrara County. The well was drilled to 8656 feet total depth and plugged back to 8473 feet.

A successful stepout of the Cole Creek field has been drilled by the Pegasus Division of Socony-Vacuum. On a test of the Dakota at the interval 8432-63 feet, operator recovered 1640 feet of oil from the No. F-41-9-G, in c ne ne 9-35n-77w. The well is a mile northeast of previous production in the Cole Creek field. It was drilled as a slim hole operation.

Buck Creek Oil Co. has brought in a Dakota producer in Niobrara County, the No. 1 Govt., ne se sw 2-35n-64w. The well was completed for 360 barrels of oil per day, swab gauge. The crude is of 41 gravity, and production was obtained through perforations at 4012-22 feet.

In Washakie County, Sinclair Oil and Gas abandoned the No. 1 Nowater Unit, nw nw se 28-45n-91w, after drilling to 10,505 feet. The well was bottomed in the Tensleep.

Seaboard Oil Co. will drill a Tensleep test, the No. 1 Govt., sw nw sw 32-51n-91w, in Big Horn County. The operator is seeking U.S.G.S. authority to unitize the area.

McElroy Ranch, Natural Gas & Oil and Bruce Anderson recovered approximately 100 barrels of oil per hour from the interval 5431-55 feet at their No. 2 Horne, ne ne sw 11-20n-79w, Carbon County. This is the second producer drilled by the operators in this area, which is two miles south of production in the Big Medicine Bow field.

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Montana

Recovery of substantial oil production in the shallower Mission Canyon at the No. 2 Dynneson in the Brorson area of Richland County was expected to bring expanded activity in the area. Sun Oil and Phillips Petroleum, the operators, were preparing to put the well on pump after swabbing 195 barrels of oil per day from the interval 9128-9220 feet. The well is located in c sw sw 29-24n-58e. The No. 2 Dynneson is a mile and a half northwest of the No. 1 Dynneson, which was completed in the Ordovician at 12,585-12,605 feet. There were some Mission Canyon shows in the discovery well but they were not tested.

Union Oil and Carter Oil cored ahead at their No. 1 Tribal 544 in the Landslide Butte area of Glacier County after recovering oil in the upper Madison. Ten feet of 36.1 gravity oil and 135 feet of mud cut oil were recovered in a drill stem test at 4696-4713 feet. The mud cut oil was 50 pr cent oil. The well is in c nw nw 19-37n-8w. The same operators moved in rotary for a Madison test, the No. 1 Miller Tribal 470, c nw ne 7-33n-6w, Glacier County. This test is approximately half way between the Cut Bank and Reagen fields, both of which have found production in the Madison.

Lion Oil Co. installed pump to produce the No. 1 Knight, c sw nw 29-14n-60e in the Wibaux area of Wibaux County. No detailed information was released but the total depth was unofficially reported at approximately 11,000 feet.

Union Oil Co. of California was highest bidder at a recent auction of Blackfeet Indian reservation lands. Union Oil paid $149.42 per acre for 280-acre tract. Total bids at the auction amounted to $1,107,982, covering

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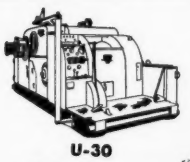
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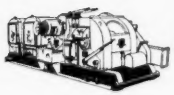
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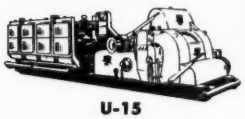
TRAILER UNITS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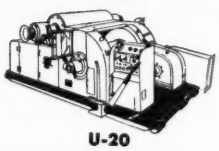
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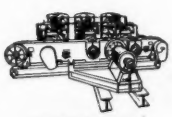
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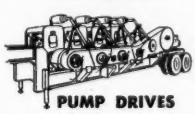
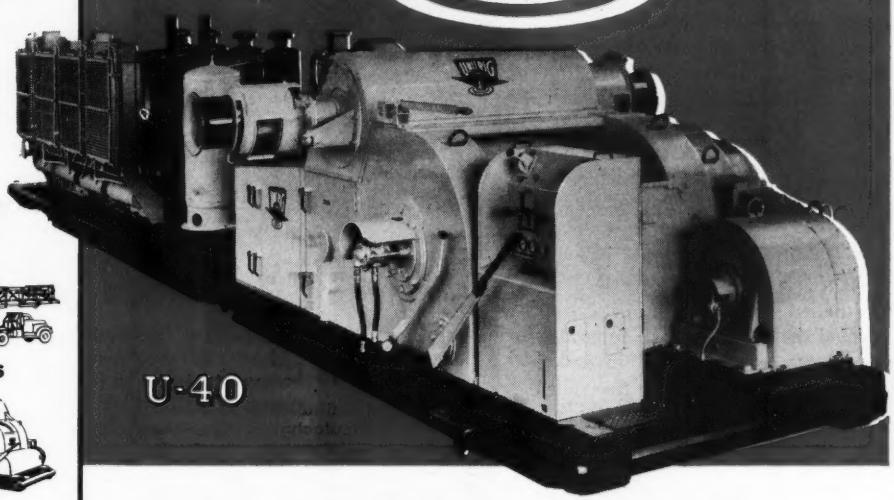

PUMP DRIVES



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North Dakota

Amerada Petroleum has brought in a producer three miles east of the Tioga field. The new well is the No. 1 Sather, ne ne 34-158n-94w. in Mountrail County. It had an initial production of 159 barrels of oil and 30 barrels of water per day. The well is in the White Earth area and is a mile and a half northwest of the No. 1 Lokken, which was the White Earth discovery.

The California Co. planned to drill to 10,500 feet at the No. 1 Rough Creek Unit before running casing for a test of the Madison. The well, in nw ne 13-148n-98w, McKenzie County, had shows in the Mission Canyon.

On farmouts from Union Oil of California, S. D. Johnson will drill four wildcats in the eastern part of the state. There will be three Devonian and one Silurian test and they will be drilled in Stutsman, Foster, and Wells Counties.

Calvert-Northwest McLaughlin have found oil in a well which once was abandoned. The new producer is the No. 1 McGinnity, nw ne 6-158n-95w, in Williams County. It is on a farmout from Pure Oil which originally drilled the well in 1952 and abandoned it. The present operator recovered 90 barrels of oil in a 19-hour pump test. The well is five miles west of Mission Canyon production in the Tioga field. A half mile to the east of the new discovery, W. H. Hunt drilled the No. 1 Gohrick, se se 5-158n-95w, for 135 barrels of oil per day from the same formation.

Colorado

Miracle & Fifer Drilling Co. was drilling ahead to the J sand after making a good recovery in the D sand at the No. 1 J. H. Monroe, ne ne nw 1-8n-53w, Logan County. Operator said there was gas to the surface in 11 minutes, with a recovery of 4300 feet of oil from the interval 4792-4805 feet. The well is four miles north and three miles west of Sterling.

Quintana Production was drilling ahead at the No. 1 C.F. & I wildcat in Moffatt County after recovering gas at the rate of 4,000,000 to 5,000,000 cubic feet per day from the interval 2502-20 feet. Some oil showings also have been found in the well. Location is ne se sw 13-12n-89w.

The Texas Co. abandoned the No. 70-32 UPRR, sw ne nw 32-2n-102w, in Rangely County. This was the first well in the field to go below the Weber formation. It was drilled to a total depth of 9360 feet.

Shows of oil and gas in the J sand were found by Midwest Oil and Balderson Denver Drilling at their Logan County test, the No. 1 Peavy, c sw ne 23-11n-55w. At last report the well was at 5495 feet total depth.

S. D. Johnson planned to complete his No. 1 Lind-Bacon, c sw sw 19-3n-57w, in the D sand after finding water in the J sand. The well, in Morgan County, encountered gas at the rate of 3,000,000 to 4,000,000 cubic feet per day and also some distillate in a test at 5514-41 feet in the D sand.

In Washington County, C. A. Floto shut in the No. 1 Neiman, sw se se 11-1s-55w, for storage after swabbing from four to 10 barrels of oil per hour from the interval 4784-88 feet.

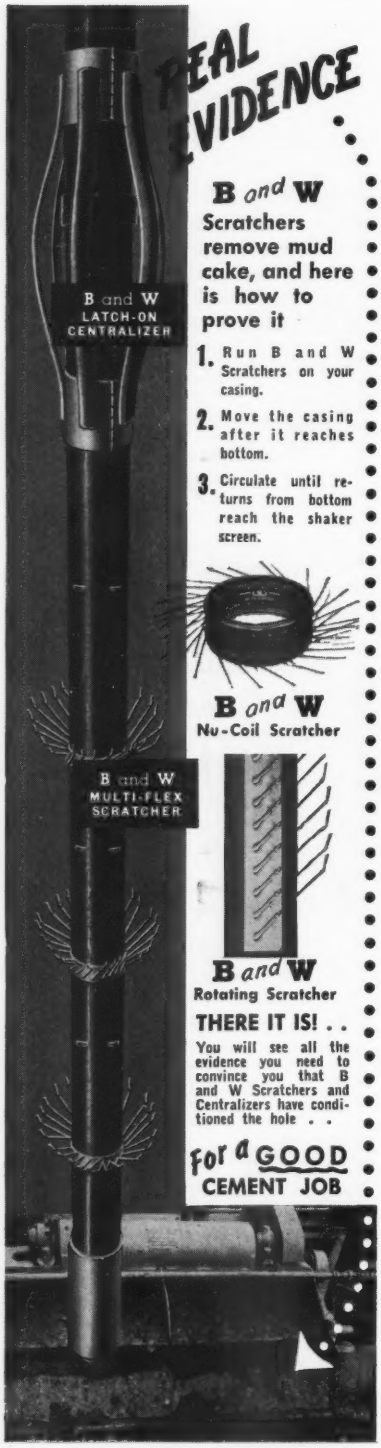
Ginther, Warren & Ginther recovered a pump gauge of 51 barrels of oil per day from the No. 1 Mathewson, sw ne sw 12-9n-55w, Logan County. Thirty seven barrels of water per day also were recovered. After being drilled to 5485 feet, the well was plugged back to 5448 for completion.

Carter Oil recovered gas at the rate of 3,220,000 cubic feet per day from the Fruitland at the No. 1 Ute, ne sw ne 23-32n-10w, in La Plata County.

Nebraska

Five miles southeast of Kimball, the No. 1 Hafeman, se se ne 23-14n-55w, has been brought in as a successful producer from the J sand. Eddie Fisher is the operator. Recovery was 4980 feet of oil and 120 feet of water in a one-hour drill stem test of the interval 6185-6203 feet.

Another Kimball County producer, a half mile south of the town of Kimball, has been drilled by Natural Gas and Oil, which recovered 3700 feet of gas cut oil. The test was for 45 minutes and also recovered mud and water. The producer is the No. 1 Durland, c ne nw 5-14n-55w.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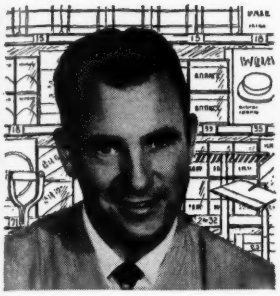
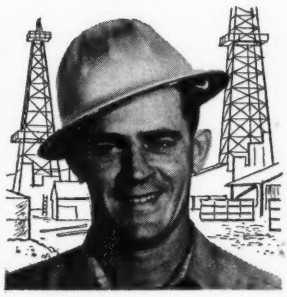
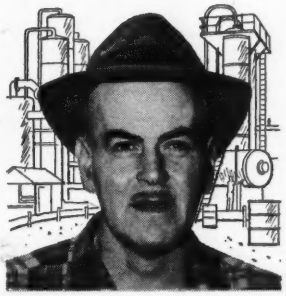


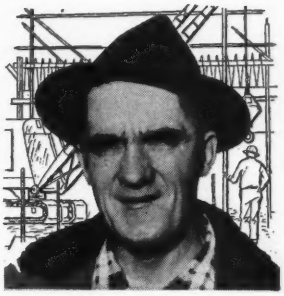
Goods and services—cost us $324,743,000. This was spent with thousands of firms, large and small in hundreds of cities.



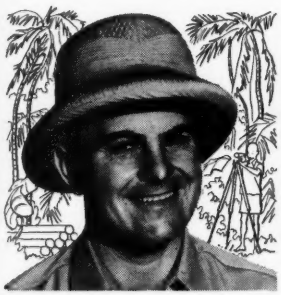
Crude oil was a big item. To supplement our own large production we bought $135,600,000 worth from crude oil producers.



Wear and tear, depreciation and maintenance amounted to $157,834,000. Millions went to workmen and material firms.



New construction, such as improved refinery facilities, to supply you with more and better products, added up to $145,000,000.



Exploration to replace oil our customers use is costly. Our stepped-up search to find new oil reserves cost us $79,000,000 in 1953.

Employees' wages for time worked took $163,947,000 of our income. Another $43,000,000 went for employee benefits.

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Your picture belongs here, too. Because most of the $1,156,757,000 Standard Oil Company of California took in last year ended up with you—the public. Whether one of the hundreds of millions of dollars worth of checks Standard wrote last year was sent to you, or spent with you, or helped make possible better gasoline and oil for your car, you and practically everyone else in the West benefited. Thousands of merchants and professional people in hundreds of towns profited from the pay checks Standard Oilers spent. Our tax payments helped finance schools for your children, parks for vacationers, and bridges for motorists. Carpenters, steelmen, lumberjacks benefited from the facilities we built and the maintenance work we did. It all fits together: 1953 was a good year for Standard because so many of you thought our products well made and worth buying. And by making it a good year for us, you made it a good year for many others.

STANDARD OIL COMPANY OF CALIFORNIA

75 years of planning ahead to serve you better

North of most previous exploration in the general area, the No. 1 Leafdale, a wildcat, was to be drilled by Willits & Craig and Carmack Drilling in c ne sw 25-17n-52w. The test is 14 miles north of Potter in Cheyenne County.

Three hundred thirty feet of clean oil was recovered on a drill stem test of the No. 1 Pelster, s½ sw sw 27-17n-50w, in Cheyenne County. Harper Turner Oil, Sanford Producing and Dunn & Boreing are the operators. The recovery was from the interval 4705-17 feet.

In a test of the No. 1 Schmid, sw se 1-16n-54w, Kimball County, Shell Oil pumped 24 barrels of oil in 24 hours from the J sand.

Utah

Some declines in pressure have been noted in a recent survey of the Clear Creek gas field, it was revealed by J. A. McGuire, president of Three States Natural Gas. Further drilling will be curtailed, McGuire said, although it is not certain that there will be a continued drop in pressure. The limits of the field have not been determined, he explained, but he said some communication between wells had been indicated. Three States Natural Gas and El Paso Natural Gas have planned a pipeline from the Clear Creek field into the San Francisco area.

Western Canada

Trans-Canada Pipe Line Co. is expected to start construction next spring on a $300,000,000 to export gas from Alberta to Eastern Canada and the Middlewestern United States. The company recently was granted a permit from the Alberta government. Additional authorizations must yet be obtained from the Canadian federal government and from the U. S. federal power commission, but no difficulty is anticipated. The permit granted by the Alberta conservation board authorizes export of 540,000,000 cubic feet of gas daily over a 27 year period.

Trans-Canada will export gas from the Pincher Creek field, which will be the principal source of supply, and also from Cessford, Rimbey-Homeglen, Provost, Nevis, Medicine Hat, Princess, Countess, Hamilton Lake, Kessler, Oyen and Duchess.

Canadian-Montana Pipe Line Co. has been granted a 20 year export permit to carry gas from the Pakowki Lake field to the Montana Power Co.

Meanwhile, efforts, to export gas to the Pacific Northwest of the United States were temporarily stmied by an adverse ruling by the counsel for the U. S. federal power commission. The counsel claimed none of the applicants, including Pacific Northwest which seeks to export gas from New Mexico and Colorado to the same area, had shown sufficient justification for a license. The recommendation is not regarded as final.

The British-American Oil Co. may have discovered a new oil field in Manitoba, with a successful well drilled on a farmout from Canada Superior 12 miles south of Virden. Further tests are being conducted after the operator tapped a reservoir in the Mississippian. The Company has tentative plans to drill 10 more wells in the area.

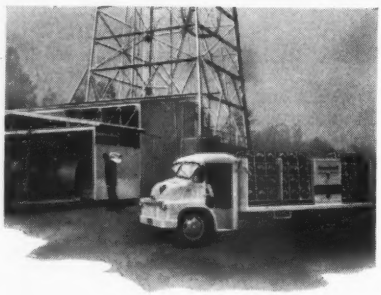
Canadian Gulf was coring ahead at its Moffat No. 11 in the Frobisher area of Saskatchewan after recovering substantial oil production. The well is a stepout a half mile east of the Canadian Gulf-Canadian Devonian Quinn No. 9.

In Central Alberta Mill City et al tested their Antone No. 3, recovering a flow of gas rated at 1,400,000 cubic feet per day through half-inch choke. The well is in the Kessler area.

Gas production at an estimated $4,000,000 cubic feet per day was obtained by Tri-Zone Oil at its fifth well in the Fort Saskatchewan field. The operator has drilled four other successful gas wells in the area. The new producer is the Tri-Zone 10-17.

The Supreme Court of Canada has upheld the right of Anton Turta and son, Nick, farmers in the Leduc oil field to oil rights, on 160 acres of land. These mineral rights have been valued at more than a million dollars. The court dismissed claims by the Canadian Pacific Railway and Imperial Oil Ltd. for the rights. Through a clerk's error, the original deed to the land reserved all coal rights to the railway company but omitted the words "and petroleum." The deed was changed in 1943 to include these words but the court held the lands titles office did not have authority to make the change. Turta bought the land from Mike Podgorny, who had purchased it from the railway company. It was in the deed to Podgorny that the error was made.

A gas flow at an estimated rate of 10,000,000 cubic feet per day has been encountered in the Socony-CPR-Kathryn 3-2, located 10 miles northeast of Calgary. The recovery was from the Devonian at the intervals 8200-32 feet and 8242-76 feet.



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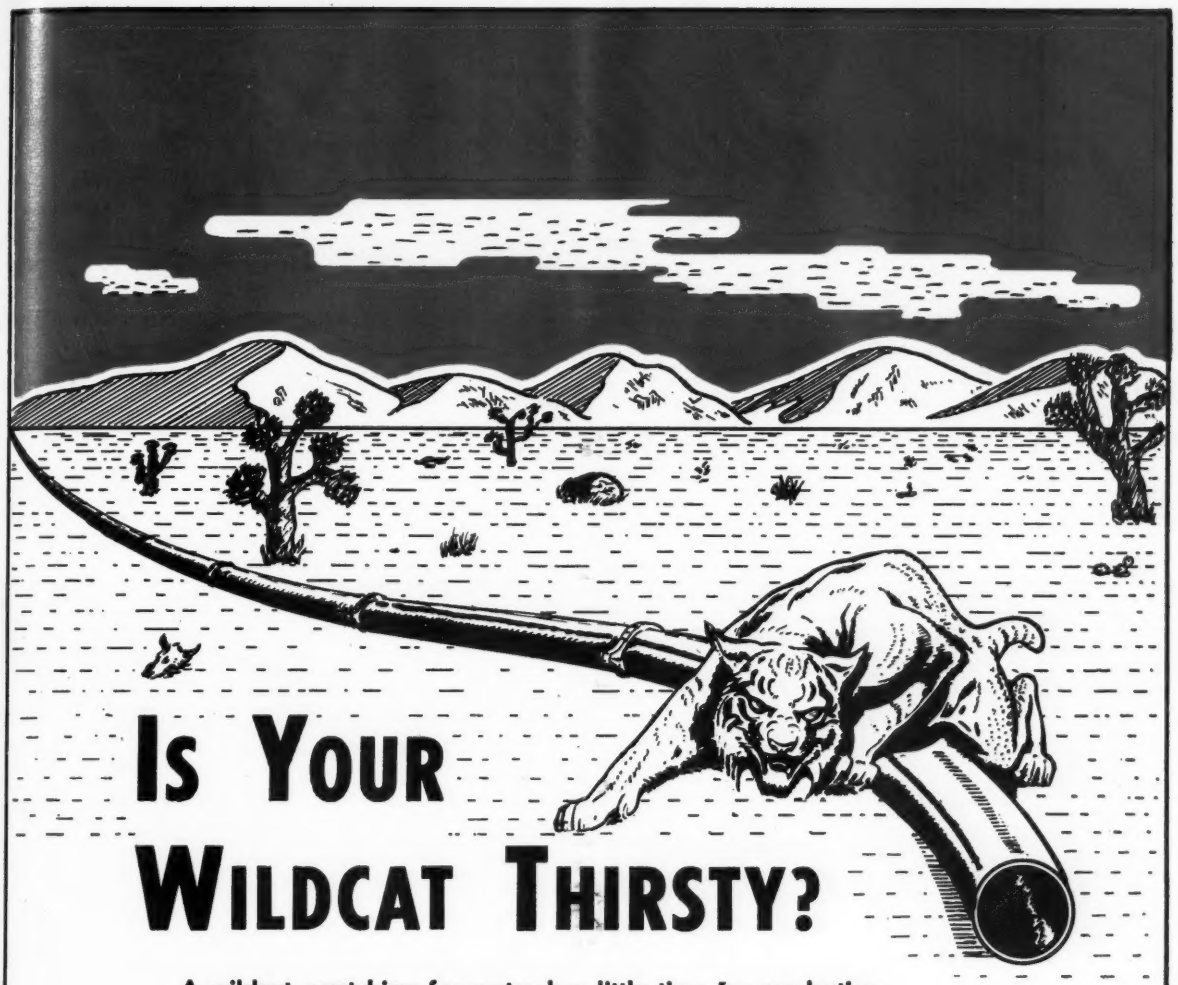

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Personalities IN THE NEWS

Eckis Succeeds Morgan At Richfield

Rollin Eckis, Chief Geologist for Richfield Oil Corporation during the last eight years, has been appointed manager of Exploration succeeding Frank A. Morgan, resigned, it was announced recently by Chas. S. Jones, President.

Rollin Eckis

"Mr. Eckis has made important contributions to the building up of Richfield's oil reserves and the spirit of youth and vigor he brings to his new assignment will assure his department's continued progress," Mr. Jones said.

Eckis has been associated with Richfield since the formation of the company's Exploration Department in 1937 when he was named District Geologist, Northern Division, with headquarters in Bakersfield. In 1946 he was appointed Chief Geologist and has served in that capacity until now.

During his service with Richfield he has directed the geological work in connection with some of the company's most significant oil discoveries. Among these have been North Coles Levee in 1938, th Cuyama Valley fields in 1948, and 1949, and the Wheeler Ridge Eocene pool in 1952.

As manager of the Exploration Department, Eckis will be in charge of all exploratory operations for the company, including geology and land acquisitions. These operations presently encompass the Pacific Coast area, the Rocky Mountain area, Western Canada, and surveys in which the company is participating in Peru and the Middle East.

Eckis was graduated from Pomona College in 1927 and received a Master of Science degree in geology at California Institute of Technology in 1929. He is a Fellow of the Geological Society of America and is a member of the American Association of Petroleum Geologists. He was one of the original founders of the Petroleum Club of Los Angeles in August, 1949, and later served a term as its president.

Mr. and Mrs. Eckis, a son and two daughters reside in San Marino, California.

Charles Edward Collins, long time Kern County resident, died recently at his Bakersfield residence. Born in 1871 at Ripley, Ohio, Collins was a retired Associated Oil Company employee.

Milton E. Moore, a member of the Richfield Oil family, and Mrs. Moore were guests of honor at a dinner given by friends the other week at Lebec. Moore retired June 1. At the time of his retirement he was on duty at the Richfield-Tejon pump station near Lebec, where he had served for 17 years.

H. L. Hunt, leading Texas operator and with a legion of friends in California oil circles, is understood financing a new and national publication, due to make its bow in the very near future.

Gallagher Advances at Shell

J. E. Gallagher has been named to fill the position of chief mechanical engineer for the Shell Oil Company's Pacific Coast exploration and production area, according to an announcement by S. F. Bowlby, vice president. He succeeds C. A. Yeatman who passed away.

J. E. Gallagher

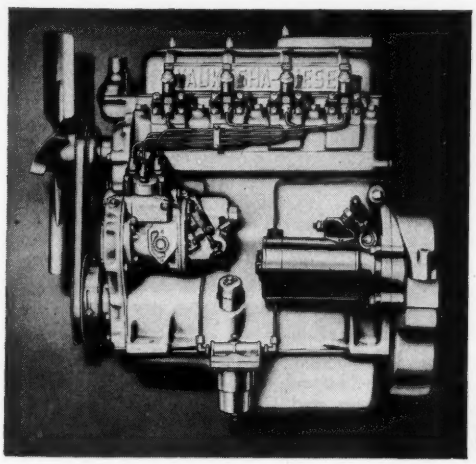
Born in Hannibal, Mo., Gallagher was raised in Ventura where he attended Ventura Union High and Junior College. He completed his education at Stanford University where in 1938 he was awarded a bachelor of arts degree, later returning for post graduate work and a mechanical engineer's degree which he received in 1941.

He started his career with Shell during school vacations as a laborer and roustabout in the Ventura field. Upon completing his education, he joined Shell and in 1944 moved to San Francisco where he worked as technical assistant. A year later he transferred to Bakersfield where he served as exploitation engineer and

NOW

A CLEAVER-BROOKS SEA WATER EVAPORATOR SPECIFICALLY DESIGNED AND BUILT FOR OFF-SHORE DRILLING

WAUKESHA

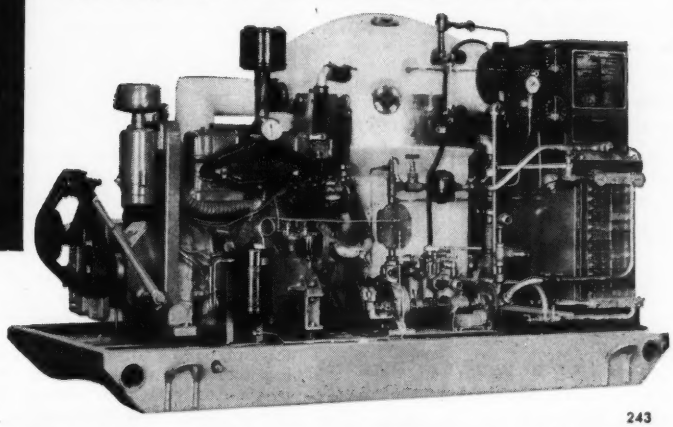


WAUKESHA 180-DLC DIESEL powering evaporator shown is a 4-cylinder, 4-cycle engine, 3½-in. x 3¾-in., 144 cu. in. displ., maximum hp 45 at 2400 rpm. It's a smooth, clean Diesel with lively pick-up and quick response, shock-free operation and high fuel economy. *Send for Bulletin 1626.*

POWERED

CLEAVER-BROOKS EVAPORATOR

produces fresh water—uniformly pure—for off-shore drilling mud make-up, or drinking—at a cost as low as 4 cents a barrel—automatically—dependably—with a minimum of maintenance or attention.



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WAUKESHA MOTOR COMPANY, WAUKESHA, WIS. • NEW YORK • TULSA • LOS ANGELES

later as senior mechanical engineer.

In 1948 he moved to Casper, Wyo., where he worked on the early development of Shell's activities in the Rocky Mountains. Returning to Bakersfield in 1950 he was named division mechanical engineer. In 1951 he was appointed division production superintendent, a position he has held in both Bakersfield and Ventura until his appointment in Los Angeles.

Mrs. Livada Heads L.A. Desk & Derrick Club

Mrs. Katherine Livada, Division Chief Accountant and office manager for Tretolite Co. of California Division, was elected president of the Los Angeles Desk and Derrick Club for the coming year at the annual meeting. Mrs. Livada was first vice president of the group in 1952-53 and during the 1953 national convention in Denver, was a member of the Resolutions Committee.

Katherine Livada

Other officers elected to serve for 1954-55 are: Mrs. Lucille Lyle, Bankline Oil Company, first vice president; Miss Helen Hogan, Signal Oil and Gas Co., second vice president; Mrs. Faye M. Jordan, R. J. Eiche & Associates, Inc., recording secretary; and Mrs. Lorene Peterson, Union Oil Co. of Calif., treasurer.

Elected for a two-year term as directors were Miss Margaret Martin, Baker Oil Tools, Inc., and Miss Betty Meagher, Fluor Corp., Ltd.

Installation of the newly elected officers will take place the end of June.

Howard M. Herron has retired as chairman of the executive committee of California Texas Oil Company, Ltd. He became first president of Caltex when it was formed in 1936. Ten years later he became board chairman and in 1950 was named executive committee chairman.

Fred B. Bremer, Union Oil Company of California, is among new officers of the Los Angeles chapter of the National Institute of Credit.

C. J. Van Til has been appointed area engineer for the Asphalt Institute, Pacific Coast division. His territory will cover the San Francisco Bay area and coastal counties to the north and south.

Popular John Shea, Los Angeles district manager for Tide Water Associated Oil Company, plans to retire next July 1. John, has been with the company for 35 years. His successor will be Floyd Pratt, another able executive.

J. Russell Sherman of Los Angeles, Oceanic Oil Company executive vice president, has been elected to the firm's board of directors. Sherman came to Oceanic in 1949, serving as vice president until October, 1951, when he was named executive vice president. Before his association with Oceanic he was in the land department of Standard Oil of California for 14 years.

Robert L. Minckler, General Petroleum Corporation president, and Roderic S. Pedersen, purchasing supervisor of the same company, have been named to serve the University Religious Conference at Los Angeles.

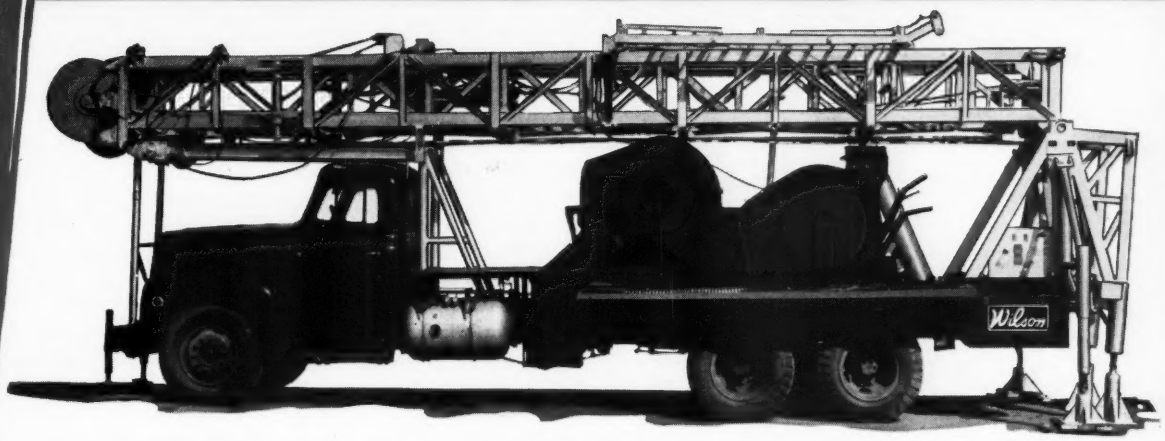
Oil man F. J. Adams of Fort Worth, Tex., who is summering in Los Angeles and other Southern California points of interest, was vice president of the great Gulf Oil Company for many years.

Pictured above is the group recently assembled at Johnston Testers annual general sales meeting held in Houston, Texas. Company officials, area managers and salesmen were present from the United States and Canada. A new type of drill stem testing equipment called the Selective Zone Tester was the highlight of a sales meeting held at Houston's Lamar Hotel by Johnston Testers, Inc., well-known drill stem testing firm of Houston, Texas. The Selective Zone Tester, which is one of several new pieces of equipment developed by Johnston, allows testing more than one zone with a single trip in the hole and also permits testing without tailpipe or cement plugs. In addition to the new equipment, which was received with great enthusiasm by the area managers, salesmen and company officials present, the sales meeting featured the company's advertising plans for the year. Two more features of the sales meeting were the new Johnston Drill Stem Testing Technical Manual and a simplified treatise on drill stem testing, which are now in the hands of the sales force. Not all the meeting was devoted to this material. A highly entertaining series of skits kept the interest of the sales personnel at a high peak. They included dramatized "right and wrong ways" to develop customer interest in Johnston services.

When it comes to OIL WELL SERVICING—

'RED IRON' ELIMINATES RED INK

BE MODERN-BUY WILSON!



Super "38" Double Drum Winch—Power Take-off mounted—with Super 65 foot Mast

THE *NEW* WILSON HEAVY DUTY TRUCK POWER TAKE-OFF

Designed especially for use on large trucks to carry full engine power to Oil Well Servicing Winches, *this "PTO' is the finest of its kind.*

Mounted directly in the drive shaft system of the truck, it turns the drive at a right angle and reduces the speed by one half, in a spiral bevel gear drive that is perfectly noiseless. A multiple width roller chain drive then transmits the power upward to a point above the truck frame. Here an extension drive shaft, equipped with gear-type clutch, carries the power outward to an oil bath chain drive which then carries the power to the winch countershaft. A gear clutch is provided in the main drive shaft to disengage the truck wheels when desired. All parts are enclosed and run in oil bath.

All drive system parts are extra heavy, heat-treated alloy steel, and run on extra large precision anti-friciton bearings. The case is welded heavy plate steel with a three-point suspension in the truck frame. This Heavy Duty PTO weighs about 1200 pounds complete but will save several thousand pounds of extra engine and transmission weight. It also makes possible a complete well servicing unit within legal weights, that would not be possible with separate engine and transmission or converter.

SPECIFICATIONS FOR SUPER "38" WILSON WINCH

	Main Drum	Sand Line Drum
Drum Barrel Dia. & Length	12¾" x 35"	12¾" x 35"
Brake Ring Dia. & Width	38" x 8"	31" x 8"
Flange Diameter	42"	37"
Spooling Capacity 9/16" line	13,000'	10,000'
Number of Speeds	5	5
High Speed 1st layer	1000	1800
Low Speed 1st layer	125	225

MAST SPECIFICATIONS

• Can be mounted on either truck or trailer • Built of finest "Manten" Angle Steel • Four Roller bearing sheave crown block • Unique crown assures straight block fall • Positive locking device controlled from ground • Safety Latch so mast cannot drop over four inches • Requires no additional guy lines • Hydraulic raising to vertical, lines to telescope upper section • Pipe racking platform automatically raised into position when upper section raised • Rod Basket built into mast for folding out • Meets all safety requirements • Road width of less than 8 feet • Meets highway requirements of length, width and height • Mast capacity 140,000 lbs.; hook load 4 lines.

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The FIRST NAME in OIL FIELD WINCHES

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EXCLUSIVE WEST COAST DISTRIBUTOR OF WILSON MANUFACTURING COMPANY, INC.

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Ventura Office: 1254 No. Ventura Ave.—Phone Miller 39046

Eastman Holds Barbecue At Bakersfield

The Eastman Oil Well Survey Company held a barbecue for the oil fraternity at Bakersfield, California, on Thursday, May 27. Over 200 guests attended the affair which was in celebration of the new office location of the company in the valley city. Clyde Stokenbury, Eastman Division Manager of Bakersfield, and his staff were hosts to the oil men. H. John Eastman, President of the Eastman Oil Well Survey Company whose headquarters are in Denver, attended the affair, as well as other officials of the company from Denver and Long Beach.

The new Eastman office is located at 3504 Pierce Road. The new quarters which are situated on more than an acre of ground, include general office space with five private offices, a reception room, instrument and tool and storage shop, and a large photographic dark room. Adjoining the main building and connected by a breezeway is a garage. At the rear of the property a new shipstock rack has been built and it is so arranged that trucks can drive completely around the rack for loading or unloading.

The Los Angeles oil industry was represented tennis-wise in the recent French International Golf Meet at Paris by Clarke Hardwicke. Hardwicke is 35 years old and is principally a week end golfer.

Robust health appears the lot of the active bowler as evidenced by the average age of members of General Petroleum's pipeline bowling team, which is 61. Now active in the company's bowling league at Gardena near Los Angeles, the team's oldest member is Annuitant Fred Murrey, 70. The youngest member is 54 and total ages of all five members is 305 years. Murrey started in 1926, Karl Nielsen in 1928, Bob Palmer in 1936, Bud Groling in 1941 and Al Marques in 1948.

Paul Wilder, a familiar figure in California oil operations, is understood to have widened his business activities by acquiring substantial interest in the Nev-Tah Oil & Mining Company, Reno, Nev.

Howard H. Wilson and Henry Spraggins, independent oil men, have set up a $1,000,000 California corporation for producing religious films. The market for films of this type is said to be growing at a tremendous rate.

Asa V. Call, University of Southern California board of trustees president, announces the election of Reese Taylor, Union Oil Company president, as a trustee of the university.

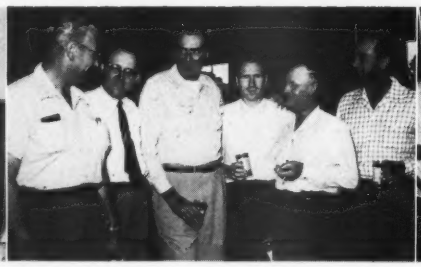
Genial Bill Inskeep, former California oil operator, was a recent Los Angeles visitor. Bill for the past several years has been identified with oil development in the Mid-Continent region, with headquarters at 1124 North Boston street, Tulsa, Okla.

H. John Eastman, President, Eastman Oil Well Survey Company, and Warren N. Craddock, Assistant General Superintendent, Pacific Western Oil Company, look over Eastman's new two cutter hole-opener.

Left to right: Dick Kellogg, R. K. Kellogg Drilling Company; C. L. Corley, Superior Oil Company; Onos Lindsay, Eastman Oil Well Survey Company; "Pug" York, Miller and York.

A general view of the crowd at the Eastman Oil Well Survey Company barbecue.

Four of the oil men examine a cutaway of a single shot survey instrument. They are, left to right: Ross Wiley, Pacific Coast Division Manager, Eastman Oil Well Survey Company; Cliff Reynolds, Drilling Superintendent, Standard Oil Company, Taft; John Mahle, Assistant Drilling Superintendent, Standard Oil Company, Taft; and Clyde Stokenbury, Bakersfield District Manager, Eastman Oil Well Survey Company.



Left to Right: Tine Gaiser, Gaiser Drilling Contractor; H. John Eastman, Eastman Oil Well Survey Company; W. P. Barson, Richfield Oil Corporation; Darrell Sims, Eastman Oil Well Survey Company; J. T. Penix, Richfield Oil Corporation; R. C. Smith, R. K. Kellogg Company.

Seated at the table in the front row are, left to right: Bert Ellison, independent contractor; E. Nicodemus, Western Gulf Oil Company; John Williams, Western Gulf Oil Company. In the back row, left to right, are: Ted Easton, Easton and Sacre, Consulting Engineers; Onos Lindsay, Division Sales Manager, Eastman Oil Well Survey Company; Joe Shea, Chief Engineer, Richfield Oil Corporation and Eddie Fletcher, Ohio Oil Company.

"For over twelve years, the U.S. Rubber Company..."

HARRY E. HUMPHREYS, Jr.
President,
United States Rubber Company

"For over twelve years the United States Rubber Company has offered its employees the Payroll Savings Plan, whereby they can systematically and regularly save in United States Savings Bonds. Over those years, tens of thousands of our employees have joined the Payroll Savings Plan with direct benefits to themselves and their families. Such employees are better employees because with more personal security and freedom from economic worry, there is less absenteeism and personnel turnover, fewer accidents and greater employee responsibility. Such regular investment in Bonds contributes also to the economic strength of the nation. By thus promoting a sounder dollar, business also directly benefits itself. That's why we at United States Rubber endorse the Payroll Savings Plan for Savings Bonds."

Mr. Humphreys cites three important benefits of the Payroll Savings Plan: Payroll Savers build personal security ... production curves reflect serious-minded workers and reduced absenteeism ... the national economy is strengthened by a growing reservoir of future purchasing power—more than 49 billion dollars in U. S. Savings Bonds, *cash value*, held by individuals.

There is still another big advantage in the Payroll Savings Plan: it is easy to install and maintain.

If you do not have the Payroll Savings Plan, or if you have the Plan and your employee participation is less than 60%, here's all you have to do to help your employees, your company and the country:

Write today to Savings Bond Division, U. S. Treasury Department, Washington, D. C. Tell them you want to join the United States Rubber Company and the 45,000 other companies that are making an important contribution to national security and a sounder dollar.

Your State Director, U. S. Savings Bond Division, will contact you promptly. He will explain the simple procedure of installing the Plan and will show you how to conduct a simple, person-to-person canvass that will put a Payroll Savings Application Blank in the hands of every man and woman in your plant and offices.

That's all you have to do. Your employees will do the rest. They are as interested in their own future as you are in yours. Give them an opportunity to build personal security for themselves and a better America for their children.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

CALIFORNIA OIL WORLD

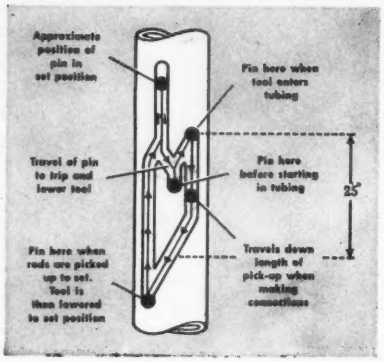
Oilmaster Insert Pump Anchor

Fluid Packed Pump Company has recently placed on the market the OILMASTER Insert Pump Anchor, a combination packoff and anchoring device that permits a pump to be set at any desired point in the tubing string. It therefore permits setting the pump in a tubing string where a shoe or setting nipple are not provided, or permits raising the pump without pulling tubing.

According to the manufacturer, it is the only insert pump anchor that can be set without rotation. The vertical setting is made possible by the patented slot pattern which is milled into the body of the anchor. In running the anchor, the dowel pin of the slip cage assembly remains in the running slot. When the desired setting point is reached, an upward movement of the body in excess of the length of the running slot will cause the diagonal lower slot to transfer the dowel pin to the setting slot. When the rods are lowered, the slips will set before the pin reaches the end of the longer slot. If it is desired to rest the pin in the running position, this can be done by again raising and lowering the rods.

Once the slips are set, the packoff sets automatically when weight is placed on the assembly. The slips force the expander sleeve upward and it expands the rubber to effect the packoff. The packoff and slips will remain set without weight, so the pump can be operated immediately without filling the tubing.

The primary advantage of a pump


Approximate position of pin in set position
Pin here when tool enters tubing
Travel of pin to trip and lower tool
Pin here before starting in tubing
25'
Pin here when rods are picked up to set. Tool is then lowered to set position
Travels down length of pick-up when making connections

anchor that sets by vertical movement only is that it can be set without hazard of unscrewing the rods and without special clutching devices which are required to prevent the pump from swiveling while setting a "J" slot type of anchor. For descriptive literature, write Fluid Packed Pump Company, Box 64, Los Nietos, California.

Sievers Appointed by Oilwell Drain Hole Drilling Co.

It has been announced that the Sievers Company of Long Beach, California, has been named exclusive national distributor for the Oilwell Drain Hole Drilling Company. The latter has recently purchased the drain hole equipment of Eastman Oil Well Survey Company, along with the rights to several important new patent applications, and the basic patent of the Robert E. Lee Company of Cisco, Texas, a pioneer in the development of drain hole equipment and techniques.

The milling of casing windows and the penetration of production formations at appropriate drift angles has been a specialty of ODDCO for some time and the acquisition of the new facilities mentioned is in anticipation of increased usage, not only in California where the Company is currently drilling from 7 to 10 wells a month by the drain hole method, but in other oil-producing areas of the United States.

The Sievers Company has appointed Carl O. Spath, a graduate of the University of California, formerly with Eastman Oil Well Survey Company, as its promotion engineer in this new service. Territorial distributors named by Sievers and ODDCO are the Valley Drain Hole Drilling Company, Bakersfield, California; the Petroleum Drain Hole Drilling Company, Houston, Texas; and the Rocky Mt. Drainhole Drilling Company, Denver, Colo.

New Gardner-Denver Catalog Shows Extensive Product Line

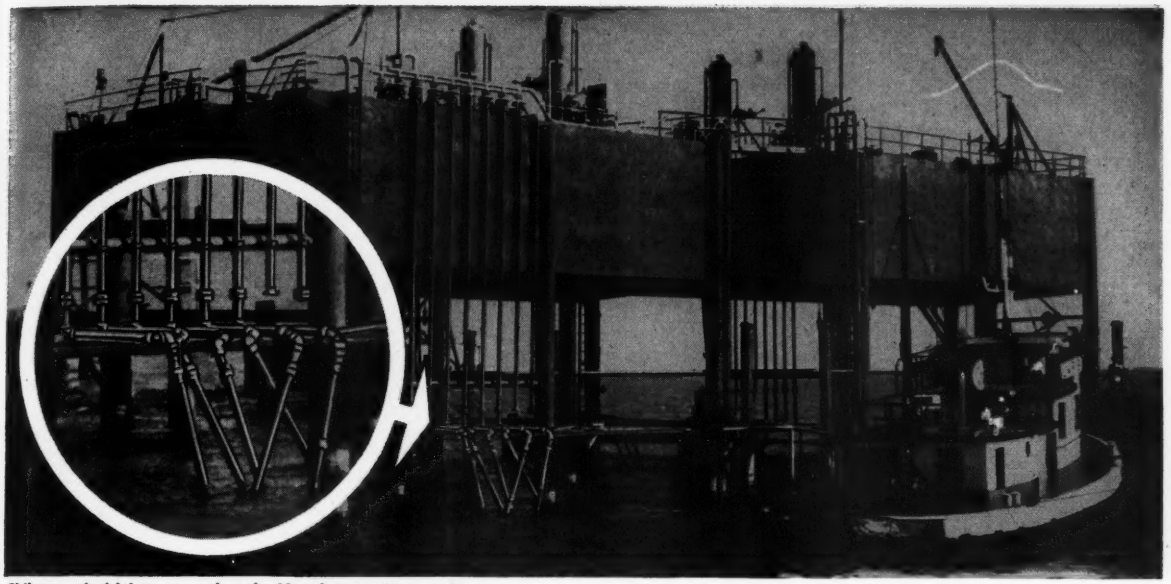
Gardner-Denver Company of Quincy, Illinois, has just introduced a compact catalog covering the complete line of Gardner-Denver pumps, compressors, rock drills and pneumatic equipment widely used throughout construction, mining, petroleum and general industry.

The new catalog has been designed to show Gardner-Denver customers—in a handy, easy-to-use form — all of the products made by the company. This was accomplished by condensing the basic information and specifications for each product, or group of closely related products, into a single-sheet, two-page bulletin. The single-sheet bulletins are then bound with a plastic binding that allows the book to open flat at any page. Indexed dividers split the book into eleven product sections for greater convenience. Additional bulletins containing full descriptive information are also available on most products, for the benefit of those who require more specific details than are found in the general catalog.

The eleven product sections in the new catalog are:

1. Compressors

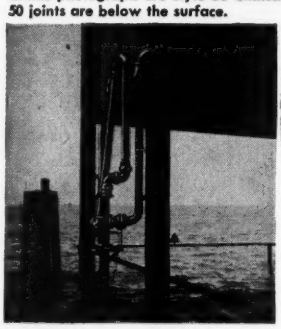
   Covering single-stage and two-



Chiksan swivel joints are used on the 12 underwater lines on this portable submersible tank battery barge which stores oil from 12 wells. Three swivel joints are used on each line to provide necessary flexibility and safety against storms, wind and waves. Visible in this photograph are style 50 Chiksan joints. Style 10 and style 50 joints are below the surface.

Davey Jones' Locker

IS FULL OF *CHIKSAN* MARINE SWIVEL JOINTS... 3 Years of Storms, Wind and Waves Have Proved the Flexibility, Economy and Safety of CHIKSAN Marine Swivel Joints in Submerged Salt Water Service.

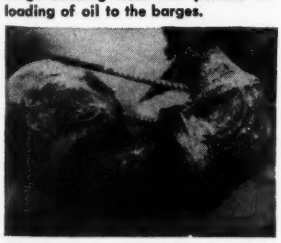


Each submersible tank battery has a 6" or 8" CHIKSAN aluminum Marine and Barge Loading Hose that permits unloading of oil to the barges.

In the bays along the Texas and Louisiana Gulf Coast submersible tank-battery barge storage and transfer of oil has been made both possible and practicable with the application of CHIKSAN Marine Swivel Joints to the under-water flow lines.

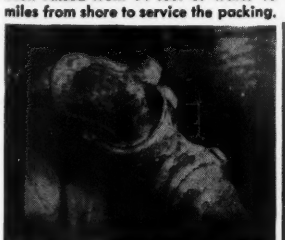
In waters that range from 8 to 35 feet deep and with pressures up to 2100 psi. CHIKSAN joints have given the necessary flexibility of flow lines, economy of transport and safety of operation in transferring oil for distances in excess of 13 miles under water without line rupture or loss of product. Tight bends and connections on the flow lines between well platforms, tank batteries, metering platforms or drilling structures in the operation of off-shore locations that could not withstand the "Sunday Punch" of wind, waves and dragging boat anchors, are eliminated by the use of CHIKSAN swivel joints.

CHIKSAN'S special design submersible Marine Swivel Joints have once again solved a costly and perplexing problem of the Petroleum Industry.



After 3 years of under-water service this CHIKSAN Marine Swivel Joint has been raised from 14 feet of water 13 miles from shore to service the packing.

Write CHIKSAN Engineering and Research for complete details. Dept. 6-COW



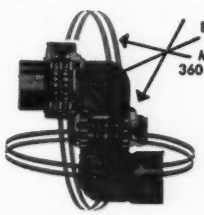
Same CHIKSAN joint being cleaned of marine growth after re-packing and preparatory to re-submerging for years more of safe and economical service.

The Flow of Enterprise Relies on

CHIKSAN

Ball-Bearing Swivel Joints

THE NEW TOOL OF MODERN INDUSTRY



CHIKSAN Ball Bearing Swivel Joints are THE NEW TOOL of Modern Industry with full 360° rotation in 1, 2, and 3 planes. Over 1,000 different types, styles, and sizes have been developed for pressures and services from 28" vacuum to 15,000 psi and for temperature ranges from minus 70° to a plus 500° F. with packing materials for each specific service.

CHIKSAN COMPANY • BREA, CALIFORNIA • Chicago 3, Illinois • Newark 2, New Jersey

Well Equipment Mfg. Corp. (Division), Houston 1, Texas • Subsidiaries: Chiksan Export Co., Brea, Calif.; Newark 2, N. J. • Chiksan of Canada Ltd., Edmonton, Alta.

stage, water-cooled and air-cooled compressors in many sizes and types; also vacuum pumps, and air compressors for special uses such as engine starting, automotive and sprinkler service.

2. Centrifugal Pumps
   Covering side-suction and close coupled pumps for water supply, irrigation, chemical and general service.
3. Industrial and Oil Field Pumps
   Covering steam pumps for general or high-pressure service, power pumps for industrial uses and for special oil field applications.
4. Compressor Accessories
   Aftercoolers, condensate traps and controls.
5. Portable Air Compressors
   In sizes from 50 to 600 cubic feet per minute.
6. Rock Drills and Mounting
   Including wagon drills, the pipeliner's Twindril, stopers, hand held drills, air leg drills, drifters, deep hole drills, quarry drills, hydraulic drill jumbos and drill mountings.
7. Pneumatic Tools
   Trench diggers, clay spaders, tampers, paving breakers and sump pumps for construction maintenance work.
8. Drill Steel and Forging Equipment
   Drill steel sharpeners and forges, drills rods, and sectional rod equipment for deep hole rock drilling.
9. Air Motors and Air Starters
   Covering direct drive and geared compressed air motors, and engine starting air motors.
10. Air Hoists—Airslushers—Mine Car Loaders
    Air hoists for mining, construction and general use. Shaft muckers, double-drum airslushers, and mine car loaders for mining. Sawmill carriage feeds.
11. Rock Drill Accessories
    Air line oilers, air hose and fittings, mufflers, and water traps.

Ask Gardner-Denver Company or one of their branch offices or distributors for Bulletin GP-100.

Natural Gas Equipment Takes Over Wilgus

Announcement of the final consolidation of Wilgus Mfg. Co., pioneer Los Angeles manufacturer of gas and oil regulators, into an operating manufacturing division and wholly-owned subsidiary of NATURAL GAS EQUIPMENT, INC., is made by J. V. Thomas, NGE President.

Details of the complete integration of Wilgus manufacturing machinery and personnel into NGE's new and larger quarters at 804 South Fair Oaks Avenue, Pasadena, are given by R. L. Grutzmacher, Executive Vice-President of NGE. Almost 60,000 square feet of floor space is now occupied by NGE in order to accommodate Wilgus machinery and the increased number of workers required by the design, manufacturing, assembly and sale of the extensive line of NGE Gas Burners and NGE Industrial Furnaces.

The following new personnel and job functions in connection with the Wilgus consolidation and NGE expansion was announced.

L. P. Stoker, formerly head of his own Precision Controls Co., becomes Manager of manufacturing. He will be assisted by John McCargar, in charge of the machine shop, and Carl Jeninngs in charge of industrial fabrication.

J. C. McCluskey continues as Manager of NGE commercial sales; R. E. Graper, Vice-President, continues as Manager of industrial sales. J. D. Wilgus remains as Treasurer of the subsidiary company. S. K. Weiser is appointed Supervisor of valve sales; M. G. Lowe is appointed Supervisor of heating and air-conditioning sales.

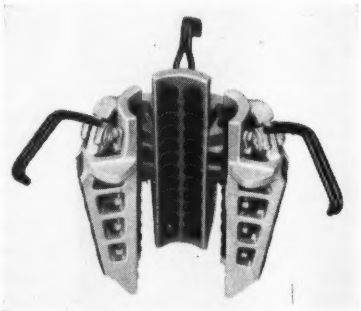
In Northern California, A. C. Staat continues as Manager of NGE's office at 938 North Linden Avenue, South San Francisco, and C. D. Lanzit, continues as Manager of NGE's sales office at 600 Ann Harbor Street, Bakersfield, California.

In addition to NGE's newly integrated manufacturing and sales business of oil and gas burning and regulating equipment, Natural Gas Equipment, Inc., is the exclusive West Coast distributor of Surface Construction Corporation of Toledo, manufacturers of "Surface" industrial furnaces, and "Janitrol" heating equipment. Other products for whom NGE are distributors include the APCO air and vacuum and pump primers and Anthony oil burners.

Distribution on NGE products is being enlarged and present distributors include Gulf Coast Machine and Supply Co., Beaumont, Texas; Automatic Specialties Co., Pittsburgh, Pa., Petroleum Machinery Co., New York for export sales, and Lockhead and Haggarty, Vancouver, British Columbia.

Self-Adjusting Buttons are Vital Feature of Web Wilson Drill Pipe Slips

New "all steel" drill pipe slips made by Web Wilson Oil Tools, Inc. are ruggedly strong for heavy duty service, yet are light in weight; for example, slips for 4½" drill pipe (complete with buttons) weigh only 145 pounds. This light weight, in combination with short handles, makes them easy and fast to operate, and the choice of fast-moving crews, crews, particularly when handling long strings of drill pipe.



The interlocking buttons rock slightly—both vertically and horizontally—to take a quick, non-slip grip which avoids any continuous straight marking on the pipe; and assists the slip segments to set uniformly. The "Buttress-Type" teeth on the buttons make it possible to secure greater hardness, longer life, and less breakage.

Converting type buttons are available, to permit reducing the size of the slips without having to purchase an additional size slip body. Additional details are available by addressing Box 72096, Los Angeles 2, California.

Another *Satisfied* user of Cardwell's SUCCESSFUL SLIM HOLE RIG

MR. J. E. "TYE" TREADWAY . .
SUNNYLAND CONTRACTING CO., INC.

TYE TREADWAY
TELEPHONE 3444

SUNNYLAND CONTRACTING CO., Inc.
Oil Well Drilling & Workover Service

P. O. BOX 624
TELEPHONE 2421

RAYNE, LOUISIANA

Mr. H. W. Cardwell
Cardwell Manufacturing Co., Inc.
Wichita, Kansas

Dear Mr. Cardwell:

We feel that the performance of our two Cardwell model "D" drawworks has been such as to call for a word of praise from us. We have had one rig for fourteen months and the other for ten months. During this time both rigs have been in continuous use and have given excellent service.

Until a few weeks ago, both of these rigs have been on deep workover jobs in South Louisiana, on depths ranging from 8,000 feet to 13,000 feet. Most of the wells have been old ones which had very old tubing in them, this meant that we had to make many round trips during fishing operations. In most cases we then picked up 2 - 7/8" drill pipe to complete the workover job. We feel that this type of operation has given these rigs a real test.

Several weeks ago, we put one model "D" to drilling, and so far this has been our lucky rig. On it's first drilling location, it brought in a nice oil well for Humble Oil and Refining Company in South Louisiana, at 5,200'. On its second try, it made a good oil well for Sunnyland in South Mississippi. This well was drilled to 6,500' using 3 - 1/2" drill pipe. At this depth, we found the rig fast at coming off of bottom and on the basis of its performance, I will not hesitate to put it on a drilling job to 8,500 feet.

My men particularly like the ease of operation of the air-friction clutches and the ability which these clutches give them to change speeds with the load moving. I think that the combination of the water-circulating brakes and the Hydrotarder give us the best braking system that anyone could ask for and I know from personal experience that these brakes have excellent feed-off characteristics. We appreciate the feature of the Hydrotarder being within the eight foot road width so that we do not have to take it off for highway moves.

When I have occasion to need more drilling or workover equipment, you may certainly expect to hear from me.

Very truly yours,

SUNNYLAND CONTRACTING CO., INC.

J. E. Treadway

J. E. TREADWAY

FEATURES: Cardwell air friction clutches throughout . . air controls . . chain transmission operated by air friction clutches running in oil bath . . draw works is lightweight and compact . . moves with engines in place. Full information on request.

CARDWELL MFG. CO. INC.

P. O. Drawer 2001 . . . Long Distance Telephones 128—129—130
Cable Address: "ALL STEEL," Wichita — "CARDSTEEL," New York
Wichita, Kansas, U. S. A.

LEE J. LAIRD
1730 KANOLA ROAD, LA HABRA, CALIFORNIA
PHONE OXFORD 7-5260

Versatile Hydraulic Crane Co. Appoints Two

Versatile Hydraulic Crane is now distributed exclusively in Northern California by Mapes Co., 724 56th St., Sacramento, Calif., and in Montana, by Conrad Forest, 2524 10th Ave., So. Great Falls, Mont.

The Versatile Hydraulic Crane is designed to answer the need for an economical, truck mounted crane, capable of operation by one man using hydraulic powered controls for loading, unloading, tipping, drag scoops, etc. It has been especially useful in handling machinery, motors, cut stone, oil barrels, concrete pipe, etc. Accessories are available for handling most products weighing less than one ton.

Weighing only about 900 lbs., the Versatile Hydraulic Crane is easily mounted on most trucks without need for structural alterations, requires only about 10 in. of mounting space; power and control are provided by the hydraulic pump driven through a power take-off unit. Lifting capacity with single cable is approximately 1100 lb., increased to 2200 lb., by double cable; boom maximum is 11 ft. 6 in., moving in an arc of 180°, with reach of approximately 20 ft., on either side of the truck platform.

New Bulletin by BS&B

Black, Sivalls & Bryson, Inc., announces the publication of three new oilfield equipment bulletins, two on emulsion treaters and one on glycol type dehydrators.

Bulletin 31-03 describes the Model S Treater, a well balanced treating unit for low cost treating; Bulletin 31-04 describes the Model SCW Treater, a cold weather modification of the Model S. Both bulletins feature a 4-color color flow diagram, dimensional drawings, and give complete descriptions of the models.

Bulletin 34-03 describes the BS&B Glycol-type Gas Dehydrator for processing natural gas to pipeline specification. Pointing out features and advantages of the BS&B unit, the bulletin also includes a 3-color flow diagram and gives a complete description of units with rated capacities of 4 to 60 MMSCFD and rated pressures from 400 to 2000 psi.

All three bulletins are available from Black, Sivalls & Bryson, Inc., Products Information Department, 7500 E. Twelfth Street, Kansas City 26, Missouri.

Martin-Decker Issues New Bulletin

Oilwell service companies in the fields of acidizing, cementing, hydraulic fracturing, de-waxing, and gravel packing should be interested in the new Bulletin P-3, "Martin-Decker Pump-Pressure Recorders." It pictures and describes in detail the company's different kinds of indicating and recording equipment. Many sizes, specifications, and combinations of features—on both portable and truck-mounted models — are shown. Write to Martin-Decker Corporation, 3431 Cherry Ave., Long Beach 7, California.

Gardner-Denver Pumps Now A California Exclusive With Republic Supply Company Of California

John J. Pike, President of The Republic Supply Company of California, announces that the firm is now exclusive distributor in California for all Gardner-Denver oil country pumps, with additional territory in the states of Arizona, Washington, Oregon and Nevada. The pumps and parts covered by the new agreement include mud pumps, oil line pumps, water flooding pumps, and accessory equipment.

Walter T. Moore, Manager of Machinery Sales for Republic Supply, states that this exclusive distribution contract is now the basis for company plans for expanded service to the petroleum industry.

Powell Canyon Wildcat Drills

Most everywhere in California, wherever gas or oil production is a possibility, The Texas Company seems well represented. A fresh venture has been started by the company in Powell Canyon in the beautiful Salinas Valley of Monterey County. There Wood NCT 1 No. 1 is drilling on Section 25-23s-11e in an attempt to win new production laurels for the Texaco escutcheon.

McKittrick Front Wildcat Test Drilling

An interesting test is wending its drilling way in the McKittrick Front area for Standard Oil of California on Section 16-30s-22e. Labeled Spreckles Fee No. 75-16Z and located on Section 16-30s-22e, the drill site is three-quarters of a mile north of the town of McKittrick and three locations east of Standard's Spreckles No. 45, which instead of blooming as a producer in the spring of 1949 came to a blighted end at 4410 feet. At Wegis Nose, taps have been sounded at 7730 feet for the company's Classen No. 51 wildcat on Section 28-29s-26e. In the Greenacres area, Standard is still working over its KCL 36 No. 15-20 on Section 20-29s-27e. Original bottom is 4602 feet and redrilled depth 4306 feet.

Dagany Gap Adds Producer

Gilliland Oil Company and H. F. Ahamson at first glance appear to have scored with a well equal to its recent discovery with their Miller No. 2 on Section 3-25s-18e at Dagany Gap, Kern County. The project was completed at 2080 feet for a yield comparable to the discovery, which was completed for 165 barrels of clean 23 gravity oil through a quarter-inch choke. The finder was brought in from 1667 feet. Miller No. 2 was originally a core hole and following the Eocene discovery, the combination decided to deepen the project, work conducted on contract by Burke Drilling Company.

TCP releases power other fuels lock in

Shell Premium Gasoline with TCP* boosts engine power up to 15% by counteracting lead and carbon deposits

You'll feel your engine's had a tune-up before you've finished the second tankful

All of today's gasolines contain deposit-forming compounds. And in a very few hours of driving—*even with a brand-new car*—lead and carbon deposits form in combustion chambers and on spark plug insulators. These deposits start tying up engine power two ways.

First, as they become heated red-hot in the combustion chambers, these deposits ignite the fuel charge *before* the piston reaches the proper firing position. This condition is called *pre-ignition.* Power works *against* you, not *for* you!

Second, as these deposits accumulate, they also short-circuit spark plugs, causing them to misfire. Fuel remains unburned, power is wasted.

Now TCP—a Shell-discovered additive—enables you to enjoy full performance from modern gasoline by neutralizing these engine deposits.

Here's how: It "fireproofs" the lead and carbon deposits inside the combustion chamber. Pre-ignition is controlled. At the same time TCP additive alters the electrical characteristics of these deposits so spark plugs no longer misfire.

TCP acts quickly

Before you've finished your second tankful you'll feel your engine's had a tune-up. But, remember, because these deposits accumulate constantly, *continued* use of Shell Premium with TCP is essential to retain its *full* benefits. It is the greatest gasoline development since the discovery of tetraethyl lead. Shell Premium with TCP is available only at your Shell dealer's.

*Shell's Trademark for this unique gasoline additive developed by Shell Research. Patent applied for.

The Greatest Gasoline Development in 31 years

SHELL PREMIUM *WITH* TCP

SHELL

THIS

LAUGH OFF!!

"Was your husband badly hurt when he was struck by a car, Liza?"

"Yassah, he suffered from conclusion of the brain."

"You mean concussion of the brain, don't you?"

"No suh! Ah means conclusion. He's daid."

At the zoo a sweet-faced girl was leaning on the rail of the bear pits, apparently completely absorbed in the antics of the polar bear. After a long, silent study, she finally turned to her mother with a rapt expression and said: "I sure would like to see them eat somebody."

Narrow roads where two cars could barely pass are being replaced by wide freeways on which six or eight cars can collide at the same time.

"Grandma," asked a youngster, "were you once a little girl like me?"

"Yes, dear."

"Then," continued the child, "I suppose you know how it feels to get an ice cream cone when you don't expect it."

Then there was the man who read so much about the ill effects of smoking that he decided to give up reading.

Said a feminine voice, from a parked car: "What's that you've been drinking? Rubbing alcohol?"

The dignified old gentleman had left his umbrella in a hotel room when he checked out. On discovering his loss, he returned to the room and listened outside the transom. From the conversation, it soon became apparent that a newly-wed couple had moved into the room.

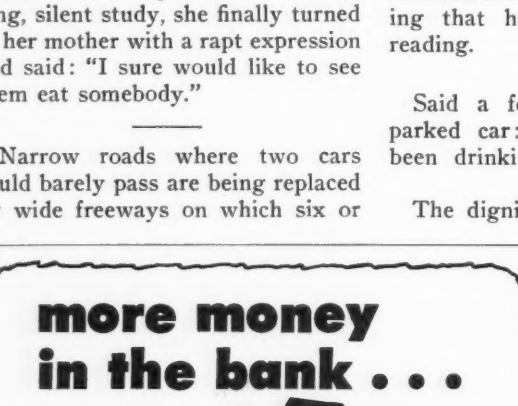
He heard: "Whose little mouth is that?" Then whispering and muted giggles. Then he heard, "And whose little hands are these?" Again the whispering and giggling.

Then the old fellow knocked on the door. "When you come to a little umbrella," he said, "it's mine!"

"Yes," said the energetic and effervescent young salesman, "I am a mind reader. I can tell exactly what you're thinking."

"In that case," was the retort, "I beg your pardon."

more money in the bank . . .



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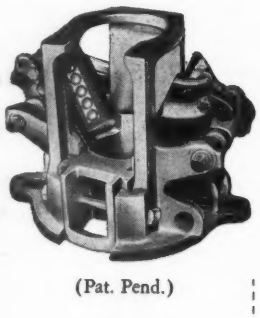

(Pat. Pend.)

Air-powered
TUBING SPIDER
(A Cavins Co. Product)

Two of the many reasons why you will be glad to own an
Advance
TUBING SPIDER

1 **Construction:** Heat treated steel is used throughout. With a minimum of weight and bulk you get the greatest strength and longest wearing life.

2 **Lubrication:** All bearings and journals equipped with grease fittings. Air cylinder and foot valve are mist lubricated through the air stream.

Bulletin TS-54 tells the whole story.
We invite you to send for your copy.

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